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THE TECHNIC OF CHENOPODIUM ADMINISTRATION IN HOOKWORM DISEASE *

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Chenopodium is now widely accepted as an efficient drug in the treatment of hookworm disease. The maximum dose is 3 c.c. for adults, but the dose most commonly given is 1.5 c.c. with graded dosage for children. Darling, Barber and Hacker [1] found that this dosage should be divided into two parts and given two hours apart in freshly prepared hard gelatin capsules. The last capsule is followed in two hours by a purge. They found that if this treatment was given twice at an interval of ten days, more than 97 per cent. of all hookworms were removed, with slight inconvenience to the patient. There are certain details in this method of treatment of hookworm disease by chenopodium that are not yet definitely worked out. The purpose of the four experiments here described is the study of the technic of chenopodium administration, considering the influence of various factors that affect the efficiency of chenopodium administration, in the field. The factors studied are: (1) the influence of the preliminary purge, two experiments; (2) the influence of the preliminary starvation period, and (3) the influence of food.

The experiments were all carried out on the same plantation, and on persons living under the same conditions. This coffee plantation was comparable in every way to other large São Paulo coffee fazendas: an unprotected water supply, absence of latrines, colonists living in groups of houses, two families to a house, and from twenty to thirty houses in each colony. All persons treated were colonists that were under contract to care for the coffee trees. The method of study was the one used by Darling, Barber and Hacker,[1] in which a trial treatment is given and all stools are kept and all worms counted and classified. Ten days later a full 3 c.c. test treatment is given to remove all remaining hookworms, and a comparison of the results of the trial and test treatment is made.

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1. Darling, Barber and Hacker: Hookworm and Malaria Research in Malaya, Java, and Fiji Islands, Pub. 9, International Health Board, 1920.

DESCRIPTION OF GROUPS

GROUP 1 (twenty-six persons).—No preliminary purge was given. All patients ate their usual supper. All adults were given 1.5 c.c. of chenopodium in two doses of 0.75 c.c. each at 6 and 8 a. m. A final saline purge was given at 10 a. m. Children from 12 to 13 years were given 0.6 c.c. of chenopodium, and children from 14 to 15 years were given 1.0 c.c. No children under 12 were treated. The children were given the small dosage because it is the approximate dosage that has been adopted by the field laboratories, is being given daily, and because it is well below the toxic limit for children of the age. Twelve days after the trial, the 3 c.c. test chenopodium treatment was given.

GROUP 2.—The patients were treated in exactly the same way as those in Group 1 with the exception that a preliminary purge was given at 8 p. m. on the evening before treatment. All patients ate their usual supper at 5 or 6 p. m. All other details of treatment were similar to those of Group 1.

GROUP 3.—This group was chosen from the same settlement of houses as Groups 1 and 2. They were allowed no solid food after 11 a. m. on the day before treatment. They were allowed milk or broth or other liquids at 5 p. m., but no food whatever after this hour. No preliminary purge was given. The following morning the same details of treatment were carried out as had been used in Groups 1 and 2. Twelve days later the usual test treatment was given. The toxic symptoms of chenopodium in this treatment were much more marked than those of any of the other groups. Prostration was universal.

GROUP 4.—This group was exactly comparable to the other three. The patients were given no diet instructions on the day before treatment and no preliminary purge. On the morning of treatment they were allowed to eat food during the time they took the treatment. The chenopodium was given at 6 a. m., and between 6:30 and 7 a. m. they had coffee, milk and bread. The amount allowed was: milk, 250 c.c.; coffee, 100 c.c.; bread, 200 gm. At 8 a. m. a second capsule of chenopodium was taken, and at 10 a. m. the final saline purge was given. There were no toxic symptoms at all from this treatment. To our surprise, the patients did not even complain of mild discomforts from chenopodium treatment, which are always experienced in routine treatment. Ten days later the test treatment was given.

A comparison of the results obtained in those experiments is given in the tables. Table 1 includes a summary of all cases treated. Table 2 includes only adults who were given full doses, 1.5 c.c. of chenopodium, in the trial treatment. Table 3 is a summary of the results obtained in children that were given a small dose—0.6 of chenopodium. The results of all four experiments are compared from four points of view:

1. Per cent. of hookworms removed by trial treatment.
2. Per cent. of cures by trial treatment.
3. Average number of hookworms left behind by trial treatment.
4. Percentage of failures by trial treatment, e. g., cases harboring ten or more hookworms on test treatment.

COMMENT

Preliminary Purge.—The tables show conclusively that a preliminary purge does not add to the efficiency of the divided 1.5 c.c. dose of chenopodium. To the contrary, there is a slightly diminished efficiency of the treatment in Group 1, treated with preliminary purge, over Group 2, in which no preliminary purge was given. The lowering of efficiency in treatment when the preliminary purge is employed is still more marked when smaller doses of chenopodium are given in children (Table 3). We realize that this conclusion is contrary to the generally accepted belief that a preliminary purge should be given in all anthelmintic treatment. Theoretically, also, it would seem that a preliminary clearing of the intestinal tract should prepare the field, so that the chenopodium would be much more effective in removing hookworm. This experiment and many of our previous experiments have invariably shown, however, that the preliminary purge not only is not necessary in the treatment of hookworm disease with chenopodium, but, to the contrary, actually reduces the efficiency of the drug.

TABLE 1.—COMPARISON OF TOTAL RESULTS, ALL AGES

	Group 1: No Preliminary Purge	Group 2: With Preliminary Purge	Group 3: Preliminary Starvation Period	Group 4: Food Given with Drug
Cases treated	20	20	21	20
Average hookworms per case	220.5	150.5	190.6	218.0
Per cent. of total worms removed, trial treatment	90.3	87.0	75.5	44.1
Number of patients cured	2	6	0	1
Per cent. of patients cured	8	22	0	4
Average number of worms remaining per case	21.2	19.3	48.7	120.6
Number of failures, 10 or more worms remaining after trial treatment	6	13	22	16
Per cent. of failures	22.3	50.0	70.0	61.6

Preliminary Starvation Period.—Theoretically, a preliminary period of from fifteen to twenty hours' starvation before chenopodium administration should leave the intestinal tract empty, and enhance the activity of chenopodium treatment. This does not occur. There is a rapid absorption of chenopodium, with marked symptoms of intoxication, and the efficiency of the treatment is considerably lowered, as the tables show clearly. This failure is especially marked in the children who are given small doses of the drug. We have no explanation for the findings of this experiment. They agree with the results obtained by Darling, Barber and Hacker.

TABLE 2.—COMPARATIVE RESULTS IN ADULTS RECEIVING 1.5 C.C. OF CHENOPODIUM ON TRIAL TREATMENT

	Group 1: No Preliminary Purge	Group 2: With Preliminary Purge	Group 3: Preliminary Starvation Period	Group 4: Food Given with Drug
Cases treated	19	20	20	17
Total worms removed by trial treatment	4,349	2,442	3,665	1,816
Total worms removed by test treatment	423	248	344	1,431
Total	4,772	2,690	4,009	3,247
Average number of worms per case	230.1	134.5	200.4	191.0
Per cent. of worms removed by trial treatment	91.0	90.7	90.1	56.2
Per cent. of cures	10	30	0	6
Average number of worms remaining per case	22	12.1	17.2	84.1
Number of failures: 10 or more worms per case	4	7	12	10
Per cent. of failures	21	35	60	58

Food Taken During Treatment.—There are various theories concerning the taking of food during chenopodium treatment. In Brazil the belief is almost universal that food eaten during the treatment is almost sure to result fatally. In the Netherlands Indies, on the other hand, some physicians believe that chenopodium may be administered with food without diminution of its anthelmintic properties.

Neither of these theories is correct, as the tables show clearly. A light breakfast of a cup of milk with coffee and a little bread, taken during chenopodium treatment, reduces the efficiency of the treatment by more than half. In children, especially when small doses of chenopodium are given with food, the drug has very slight action on hookworms. There is also no absorption of the drug, very few symptoms are experienced, and the common toxic manifestations of routine chenopodium treatment are conspicuous by their absence. The food was given only during the treatment in these experiments. If food had been given two or three hours after administration of the drug and just before the administration of the purge, the results might have been disastrous. Field directors in Brazil believe that eating food during treatment is one of the chief causes of severe chenopodium poisoning; but in their cases, food is eaten at the end of treatment and not at the beginning. We can say definitely that food administration with chenopodium does not cause increased absorption of the drug.

TABLE 3.—COMPARATIVE TABLE OF RESULTS IN CHILDREN TREATED WITH 0.6 C.C. OF CHENOPODIUM IN THE TRIAL TREATMENT

	Group 1: No Preliminary Purge	Group 2: With Preliminary Purge	Group 3: Preliminary Starvation Period	Group 4: Food Given with Drug
Cases treated	6	2	7	5
Total worms removed by trial treatment	779	439	615	454
Total worms removed by test treatment	128	182	1,109	1,134
Total	907	621	1,724	1,588
Average number of worms per case	151	307	246	317
Per cent. of hookworms removed, trial treatment	85.8	70.6	35.6	28.5
Number of cases cured	0	0	0	0
Per cent. of cures	0	0	0	0
Average number of worms remaining per case	21.3	60.7	158	220
Number of failures, 10 or more worms remaining per case	2	3	7	3
Per cent. of failures	33	100	100	60

The conclusions to be drawn from these four experiments are self-evident.

CONCLUSIONS

1. A preliminary purge does not add to the efficiency of the treatment with chenopodium, when the drug is given in two doses, 1.5 c.c. being considered the adult dose.

2. A preliminary starvation period is not necessary in the treatment of hookworm disease with chenopodium in divided doses of 1.5 c.c.; on the contrary, the efficiency of the chenopodium is lessened.

3. A small amount of food given coincidently with the drug, when the chenopodium is given in divided doses of 1.5 c.c. greatly diminishes the efficiency of the drug in the treatment of hookworm disease.

4. In the smaller doses of chenopodium that are given children, the decrease in efficiency of chenopodium caused by the factors of preliminary purge, starvation period and food is much more striking than in the full adult dosage of 1.5 c.c.

THE SIGNIFICANCE OF GROUP PRACTICE

IN ITS RELATION TO THE PROFESSION AND TO THE COMMUNITY

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I. UNSATISFACTORY CONDITIONS OF PRIVATE MEDICAL PRACTICE

Time was, and not so long ago, when the phrase "has been found proficient and qualified to practice medicine and surgery in all their branches," as appearing on the state license, contained an essence of truth. Today we are all of us ready to admit that no one could possibly cover the entire field of medicine proficiently, in spite of the fact that most of us are attempting to do so. In everyday general practice the majority of us, through lack of time or facilities, are forced to satisfy ourselves with an imperfect history, a cursory examination, more or less of a snap diagnosis, and treatment that is based on incomplete knowledge of the case.

What has characterized scientific medicine and differentiated it from the practices of the faddists and charlatans has been and always will be its tireless pursuit of truth, which, applied to the practice of medicine, means, more than anything else, the tireless effort to make a complete and accurate diagnosis. The vast advances in the medical sciences made during the last few decades have thrown many new responsibilities on the practicing physician, and chief among these is the ever increasing demand for accurate diagnosis.

In an effort to bring these great advances into common use for the benefit of the public, various specialties have been developed. With the sacrifice of a more or less important amount of general knowledge, certain men have devoted a term of years to special study in restricted fields and, having obtained the special knowledge and proficiency desired, confine their work to their chosen specialty. The public has not been slow to realize the superiority of the services of these especially trained men, and in the cities, at least among the well-to-do, it is not uncommon to find the family physician supplanted by a number of heterogeneous specialists, the services of any one of whom may be directly sought by the patient according to his self-diagnosed complaint. It can hardly be maintained that such a state of affairs offers the patient any better service in the long run that was to have been had from his family physician, who at least knew a great deal of the patient as a whole. It would be difficult to appreciate the story of a drama of the screen if we were to be shown nothing but "close-ups." While the majority of those of us in general practice are frequently forced by existing conditions to get along without expert opinions in special fields and the more complicated laboratory work, those of us engaged in special work are inclined to lose sight of general considerations of great importance to the patient. Whatever our field of endeavor in medicine may be, it is becoming increasingly difficult to do our patients justice single handed.

The conscientious specialist now finds himself confronted by precisely the same difficulties that harass the general practitioner in an honest and painstaking attempt to obtain for his patient the best that medical science can offer. Whatever his field, he, like the general practitioner, finds himself constantly in need of expert opinions in other fields to correlate with his own; or with these reports before him he may find that he lacks the necessary experience to evaluate them properly and obtain the critical point of view of the internist, an important specialty in itself. If, in addition to these difficulties, the patient is in moderate circumstances and cannot afford a number of expensive consultations, he is forced into the position which the vast majority of practicing physicians occupy today: that of doing the best he can under admittedly unsatisfactory circumstances. The practice of medicine, whether limited to a specialty or not, has long since ceased to be a "one man job."

It is not intended to imply by the foregoing that every patient who seeks medical aid should be made to run the gantlet of numerous special examinations and laboratory tests, regardless of the nature of his complaint. Indeed, the majority of patients first consulting their physician present minor or perfectly obvious ailments. There is a large group, however, which should be regarded as obscure and which requires not only intelligent direction but also a variable amount of special diagnostic work, both laboratory and clinical, and finally a critical survey and correlation of all the facts brought out, in order to establish a diagnosis. Every general practitioner, every specialist, finds himself responsible for the welfare of many such patients; in fact, the higher the type of man he may be, the more such cases will he find. He realizes that his knowledge of the case is inadequate, and that he needs the cooperation of several especially trained men and much laboratory work to establish a diagnosis and to direct his patient along the proper therapeutic road. The necessary cooperation is not at hand. The patient drifts from one physician to another, perhaps consulting a number of specialists from time to time and becomes known as a neurasthenic, that convenient pigeonhole ever ready to receive our diagnostic difficulties; no intelligent guidance, no cooperation, no correlation, no results.

II. THE DANGER OF LEGISLATION DESTRUCTIVE TO THE PROFESSION AND TO MEDICAL PROGRESS

To persist in our inefficient methods of private medical practice is to discount much of the importance of the great advances in the medical sciences already accomplished as well as those to come; to deny the public the full benefit of these advances, and to invite degrading and destructive legislation which may ruin the profession here as it has ruined it in Germany and is now ruining it in England. The increasingly socialistic trend of recent legislation has not left our profession untouched. The alert and unscrupulous politician, ever ready to rob Peter to pay Paul, is even now turning his attention to the medical profession. The degradation of a great profession is to him inconsequential. His object is the establishment of state medicine; his only opponent is an insufficiently organized profession, unable to meet his attacks by adequate defensive means, much less to undertake a vigorous offensive against this and other pernicious and destructive legislation. Small matter to him if a deluded public awakes later to find the dregs of a once noble profession administering its vital problems of health both individual and public. He will have gone his way.

It is not my purpose to enter into a discussion of the intolerable conditions attendant on the institution of any system of state or social medicine, compulsory

health insurance or whatever name may be given it. It has failed miserably from the standpoint of the laity as well as from that of the profession wherever it has received a fair trial, and I am assuming that every intelligent physician now knows enough of it to want none of it.[1] My object is rather to emphasize the fact which every one knows, that our present methods of private medical practice are antiquated and inefficient; that unless there is a decided change in the near future both the public and the profession will suffer through destructive legislation, initiated by the unscrupulous opportunist and fostered by the incompetents and myopic enthusiasts in the profession and out of it; that with our present relatively weak organization for defense we are inviting disaster; and, finally, that there is a remedy.

III. THE RELATION OF PHYSICIANS' FEES TO INEFFICIENT MEDICAL SERVICE

A few centuries ago, an honorable physician considered it beneath his dignity to require or even to suggest that he receive any remuneration for his services. True, it was customary to present the physician with an "honorarium," the nature and amount of which was left entirely to the discretion of the patient. The tradition still lingers in our profession to such an extent that, in approaching the subject, one risks the criticism of commercialism. The fact remains, however, that it is now quite proper for a physician to charge a fee, and it is generally recognized that he is entitled to it. Therein lies the crux of the whole situation.

The best that medical science can offer is open to those able to seek it out and pay for it. The best that medical science can offer is provided in many of our large charitable clinics and dispensaries for those unable to pay anything. For the vast majority, unable to pay large fees and unwilling to accept charity, there remains relatively poor medical service. The bulk of almost any physician's practice is largely made up of the middle class. The physician, whether he be a general practitioner or a specialist, finds himself constantly in need of expert opinions in other fields to correlate with his own; but he also finds that he cannot make a clearing house of his office by referring his patients hither and yon and make ends meet. The result is inevitably medical service which falls far short of the best. The conscientious physician realizes this and genuinely regrets it, while the public on its part is rapidly coming to realize it. The wail of "dispensary abuse" from the city practitioner is merely one of many indications. This subject has been thoroughly investigated by Dr. J. Whitridge Williams[2] of Baltimore. In his opinion, those able to pay moderate fees are attending charitable or semicharitable clinics and dispensaries, not because they are unwilling to pay a moderate fee for medical services, but because they have become dissatisfied with the quality of medical services which they have received. He says:

> This is partly the result of poor work by imperfectly educated practitioners and is partly attributable to the increasing complexity of medical practice, in which the knowledge of one man, no matter how extensive, no longer suffices to establish a diagnosis or lead to the rational treatment of many conditions. Who can blame a well paid worker or a clerk in modest circumstances for seeking dispensary aid after he has compared notes with less favored friends who have utilized the services of a well organized dispensary? The former knows that he has long been treated by his physician without relief, and that all he had received for his money was to have his pulse felt, his tongue inspected and to receive a prescription, while the latter will relate that in his case a thorough physical examination had been made, the blood and urine examined, and possibly an x-ray picture taken or the stomach contents analyzed. The first man must inevitably feel that he has been neglected, while the second realizes that all the resources of science have been utilized in the investigation of his malady. Whether his symptoms have been relieved is another matter; but until human psychology has changed, the result of the comparison is inevitable.

Neither the dissatisfied physician nor the dissatisfied patient can justly be criticized. Both are the victims of circumstances. However this may be, it is plain to be seen that the present state of affairs cannot long endure; that the future of private medical practice is already in the balance, and that unless we mend our ways to meet modern conditions, they will be mended for us by those least suited for the task, with the probability that disastrous and irreparable damage will be done.

IV. THE NECESSITY FOR COLLABORATIVE EFFORT TO MEET THE DEMANDS OF MODERN CONDITIONS

If we are ready to admit that the great expanse of medicine is now too broad for our individual vision, whether because our training has been a general one and we have been unable to master more than the rudiments of many special fields, since developed to great complexity, or whether because we have spent our time mastering the details of one of these special fields, we must admit in the same breath that we are dependent on others for opinions and help which may be essential to the patient's best interests. The conclusion is inevitable. It may be said, perhaps, that this is nothing new; that consultations between physicians is a principle as old as the practice of medicine. My answer is that the Golden Rule is as old as Confucius but is still far from being generally applied as a guiding principle or looked upon as a constant necessity in our daily routine.

Granting that a collaborative effort on the part of several especially trained men is now necessary to establish an accurate diagnosis and lead to the rational treatment of a large number of conditions, how can such a medical service be best accomplished?

Experience has amply demonstrated that such a service cannot be rendered by a number of men working independently of one another, except very inefficiently, not only on account of much repetition of work and unnecessary expense, but also because of serious omissions that are liable to occur. Given the necessary professional talent, there must be, in addition, proper guidance of the patient as well as close cooperation and collaborative effort on the part of the physicians before an accurate evaluation of the facts brought out can be obtained and put to practical use. Given all these requirements, the work will still be inefficient if it becomes necessary for the patient to be referred from one physician's office to another in different buildings or perhaps in different parts of the city. No matter how ideal the spirit of these physicians may be, real cooperation and collaborative effort become increasingly difficult the more they are scattered. The constant

1. At the New Orleans session of the American Medical Association this resolution was adopted: "Resolved, That the American Medical Association declares its opposition to the institution of any plan embodying the system of compulsory contributory insurance against illness, or any other plan of compulsory insurance which provides for medical service to be rendered contributors or their dependents, provided, controlled or regulated by any state, or the federal government.

2. Williams, J. W.: Dispensary Abuse and Certain Problems of Medical Practice, Bull. M. & Chir. Fac. Maryland 8:229 (June) 1916.

necessity for interdepartmental communication and ready access to all records are reasons sufficient in themselves to demand the housing of such a staff of physicians under one roof.

The increasing complexity of medical practice and our own human limitations are demanding more and more insistently that we form ourselves into cooperative groups for the purpose of private medical practice. The demand for accurate diagnosis and therapy based on scientific facts rather than personal speculation must be met by the medical profession. It can be met only by organization into cooperative groups. The alternative is some form of social medicine. The practice of medicine as a private enterprise must measure up to its increasing responsibilities or eventually be legislated out of existence.

What would become of the general practitioner if such a reorganization of our methods of private practice were to become widespread? This would naturally depend on a number of factors in each individual case. The rural practitioner would as a rule, I believe, be content to remain at his old location and at the same kind of work, especially if at the nearest town he could at any time obtain the help of a cooperative organization to see him through his diagnostic and therapeutic difficulties. The higher the type of man he might be, the more would he appreciate and make use of such a service. There would be a number of practitioners in the towns and cities as well who would prefer to continue in their old work and refer their difficulties to a group. Large numbers of men now in general practice would become active members of groups; in fact, in the smaller communities, cooperative groups would probably be largely composed of such men. Becoming members of a cooperative group, they would carry their following with them and, while retaining it, they would be given an opportunity to develop along diverse special lines toward which they might individually lean. Within a few years a cooperative group of the primitive type, that is, one composed of general practitioners, each with his own following, could by proper cooperation, encourage the gradual development of each of its members along chosen lines, eventually completing the metamorphosis into a departmental organization. Young men, recently trained in special fields, could be added from time to time to round out the organization, bringing with them new enthusiasm and special knowledge, and receiving in return the guidance, protection and encouragement of the organization as well as the assurance of a future in work of their own choosing, unhampered by financial worries and the sordid necessities of individual competitive private practice.

For those who for various reasons would prefer to remain in independent general practice, many of the disadvantages of such work under present conditions would be removed. With a well rounded organization at hand equipped to do first-class diagnostic work, the physician could send his patient to it for a diagnostic study much as he now sends his patient's blood to the laboratory for a Wassermann test. The patient would be returned to him with a report of the work done, a complete and accurate diagnosis, and full suggestions as to therapy. An organization handling a large volume of work could offer such service at a cost well within the reach of the average patient. In addition to its own work it could function as a diagnostic laboratory for the practitioner, and bear the same relation to him that the pathologic laboratory bears today.

V. THE OBSTACLES TO GROUP FORMATION

The average practitioner of medicine in time obtains a following in his community made up of people who not only hold him in very high professional regard but who look to him for advice and guidance in many intimate matters far afield from considerations of health. He may even, in time, as Osler said in his farewell address to American and Canadian medical students, "develop into that flower of our calling—the cultivated general practitioner. May this be the destiny of a large majority of you," continued Osler; "You cannot reach any better position in a community." The very truth of these words has developed in many of those of us who are thoroughly established a state of mind against which Osler was careful to warn his students, a state of mind which effectually blocks all further progress. I refer to that powerful narcotic—complacence—a poison lethal even in tiny doses to all progressive thought and action. Complacence on the part of successful practitioners is the greatest obstacle to group formation. Your complacent practitioner will tell you that he has worked hard and that he is only now enjoying the fruits of his labors; that he has a clientele which he can retain regardless of any legislation which might ruin a less successful practitioner. In group work he can see only the division of a portion of those fruits with less successful competitors. No argument will have the slightest effect on such an individual unless by some miracle the blight of complacence should become disturbed by the sacred hunger for progress. Only then will he be able to see that he must forget his present day advantages over his confrères and, with a genuine spirit of cooperation, join with them in the task of bringing private medical practice to the point at which it can creditably shoulder its responsibilities and give real service.

Among other obstacles to group formation may be mentioned professional jealousies and misunderstandings, the difficulty of reaching a financial understanding agreeable to all, and a satisfactory division of the work. Business men have precisely the same obstacles to overcome in perfecting a working agreement or partnership. They are neither more nor less difficult of solution. Yet when it becomes obvious to them that it will be advantageous to combine forces, you will find them seeking such combinations; the obstacles mentioned are overcome one way or another. Why should the situation be any more difficult in the medical world? Fairfield,[3] in speaking of this question before the Tri-State Medical Association in September, 1919, aptly said:

> Lack of organization for business has kept medical men apart since the time of Esculapius. The barbers, who have always been inclined to the curative art, practice in groups; but we doctors only occasionally get together, and then we are under the influence of a centrifugal force which tends to separate us, namely, lack of business capacity and a business system.

Groups of physicians have, however, occasionally found it possible to combine their efforts along more or less cooperative lines for the purpose of more efficient private medical practice. The tendency is increasing rapidly in this country, especially in the Middle West and the Northwest. Groups which have thus far been organized fall readily into four main divisions, some of which show several varieties. These will be described briefly in the following classification in an attempt to make clear that type of group which is best calculated

3. Fairfield, W. E.: Business Evolution and the Future of Private Medical Practice, Illinois M. J. 36: 250 (Nov.) 1919.

to become a permanent and increasingly efficient organization.

VI. CLASSIFICATION OF GROUP TYPES

A. *Closed Hospital Groups.*—The staffs of a number of closed hospitals affiliated with medical schools have for many years been practicing a sort of group medicine. Through chance, more or less, these men have been brought together by a common interest and, being closely associated with one another in their teaching, it is natural that they should extend their cooperation to their private work. Such groups are merely the natural result of a community of interests. The organization is not one deliberately planned in a spirit of cooperation to make private medical practice more efficient, and I have observed in more than one instance among our best known institutions that the public ward service is distinctly more efficient than that in the private wards. However that may be, membership in such groups must necessarily be so restricted as to make their importance negligible as regards the subject under discussion.

B. *"One Man" Groups.*—By what I have chosen to designate as the "one man" group, for want of a better term, is meant that type of organization which has been gradually developed by a successful physician or surgeon around himself and his large practice as a nucleus. Groups of this type are far more numerous than any others, and as a rule they offer a very high quality of medical service. For this reason they are usually very successful, at least from the point of view of those who direct their destinies. As might be expected, a group of this type will develop along one of a number of different lines, depending entirely on the inclinations of its dominating head, so that eventually a number of sharply differentiated varieties may be recognized. For the most part these varieties may be grouped under the following headings:

1. The Primitive Type: The primitive type of "one man" group is represented in its earliest stages by the busy practitioner who engages a young assistant on a salary. Organizations of this character seldom attain more than very modest dimensions unless there is some partnership arrangement and division of the work along departmental lines. Given a generous and far-sighted policy on the part of its dominating head, however, such a group may eventually be developed into a well balanced departmental organization. Such instances have occurred, but they are rare.

2. The Surgical Type: Among the surgical type of "one man" groups may be numbered some of the most successful examples of group medicine thus far. A successful general surgeon gradually assembles about himself a diagnostic organization to handle all but the actual operative work. As the work grows, one department after another is added to the diagnostic machine, increasing its efficiency and adding to the thoroughness of the work. It may in time assume all the earmarks of a finely balanced departmental organization, but its essentially surgical character is never lost. The chief function of the diagnostic organization is liable to remain fixed—the differentiation of surgical from nonsurgical cases. Given a keen and far-sighted policy on the part of those who direct such groups, there is scarcely any limit to their possibilities for development.

3. The Medical Type: The medical type of "one man" group is usually gradually developed by a successful internist much in the same way as the surgical type just described. In spite of the fact that a very high quality of medical service is usually offered, the growth of such an organization is limited by its somewhat restricted financial possibilities. Groups of this type differ in no essential features from the next variety.

4. The Specialty Type: Developed in precisely the same way as the surgical and medical varieties, this type of "one man" group exhibits the chief characteristic of all the groups of this division, namely, its work is largely or entirely confined to the specialty in which its dominating head has become identified. We have examples of such groups representing urology, dermatology and syphilology, as well as orthopedics and pediatrics, to say nothing of the laboratory branches. As would be expected, groups of this type are seldom found outside a large medical center.

There is one great objection to all groups of the "one man" type: when it becomes necessary to replace its dominating head, through death or retirement, with one who presumably controls a less numerous following, the organization so carefully assembled over the years past crumbles and scatters. The group disappears with its leader. The recent death of a famous Chicago surgeon has offered striking proof of this contention. Furthermore, for the reason that perhaps all but one or two of the members of such an organization occupy a position distinctly subordinate to the leader, the plan of organization is not suitable for general adoption by the profession at large.

C. *Diagnostic Groups.*—Diagnostic groups are characterized, as the name would imply, by the fact that their work is confined solely to diagnosis. Depending, as they must, almost entirely on referred work, they are to be found only in the large medical centers. There are two distinct types:

1. The "One Man" Type of Diagnostic Group: This variety is represented by the internist who confines his work to diagnosis alone, with a more or less complete diagnostic organization developed about him. In practical application, the services of such an organization are as a general rule open only to those able to pay large fees. The possibilities for development are therefore rather limited, and it is obvious that the plan of operation is not suitable for general adoption.

2. The Departmental Type of Diagnostic Group: The departmental type of diagnostic group as a private enterprise is rare. I know of only two examples, one in New York, the other in San Francisco. The basic idea of these organizations is to offer the medical profession a diagnostic service of the highest type, namely, one based on a collaborative study by the several special departments indicated in any given case. The organization functions solely as a diagnostic team for the profession. Owing to the rather unremunerative results of purely diagnostic work when extended to include those able to pay only very modest fees, these institutions aim only to be self-supporting. The physicians comprising their staffs continue with their private work independent of the organization. Although marking a distinct advance in the effort to give individual private medical practice an opportunity to become more efficient by leaning rather heavily on the support offered by such a service, the plan does not seem to strike deeply at the root of the trouble. If it is necessary to bolster up the medical practitioner in his private work by means of the services of a number of semiphilanthropic institutions for the purpose of bearing the brunt of the burden, we may as well admit that medical practice as a private enterprise can no longer be made to meet its responsibilities, and that some form of social medicine is the only ultimate solution of the

V. 19

difficulty. Furthermore, should the application of the principles of the diagnostic group of the departmental type find general acceptance, and should such institutions be gradually developed in various localities, it would then be only a short step to state or federal subsidy and ultimate control of such institutions, thereby practically insuring the ultimate state or federal control of medical practice in general.

The recent experiences of the medical profession in New York State, while it was fighting for its very right to existence against such pernicious and destructive legislation as represented by the Davenport bill, have disclosed the lengths to which unscrupulous legislators and the influences behind them are willing and able to go. In these days of unrest and increasingly socialistic tendencies in legislation it behooves the thinking physician to regard with care every move toward the socialization of medicine, however slight or in whatever guise presented, and to assure himself beyond the peradventure of a doubt that the seeds of his own destruction do not lurk beneath a pleasing and cleverly fabricated exterior, before honoring it with his approval or support. If private medical practice is to hold its own against the forces bent on its dissolution, it cannot be through general dependence on semiphilanthropic measures. Any system which at best can develop only a financially anemic institution could never provide the protection necessary. While registering a clean-cut scientific advance in private medical practice, the diagnostic group of the departmental type falls far short of the complete solution of the difficulties which must sooner or later be squarely met and overcome.

There is a method by which the practicing physicians of this country can overcome the shortcomings of present day private medical practice and at the same time erect a bulwark against which the political forces bent on denying it the privilege of existence will go down to discouragement and defeat. Cooperation is the one essential element. In the past, cooperation between physicians has been a negligible factor in preserving the honor and stability of the profession. In the future, cooperation must become the very life blood of private medical practice: its one assurance of a future of freedom and honor. This brings us to a consideration of the fourth and last division of group types in this classification—that type of group which is best calculated to meet and overcome the difficulties of private medical practice by present methods, because of the possibility of the application of its ideals and its methods of operation by the profession at large.

D. *Cooperative Groups.*—Cooperative groups all exhibit three characteristics which differentiate them from all other types and on which is founded their assurance of success:

First, the physicians comprising the group have, in a spirit of cooperation, organized themselves into a more or less concrete body for the purpose of private medical practice and with the object of offering their patients a more comprehensive and efficient medical service than could otherwise be had.

Second, there is no dominating head. Each member not only retains his identity but has a voice in the conduct of the organization's affairs.

Third, each member, if he is not already a mature specialist, is given the opportunity and is encouraged to develop himself along chosen lines, the ultimate ideal being a well balanced organization of especially trained individuals, each responsible for that type of work for which he has become best fitted.

Two varieties of cooperative groups may be distinguished; but they differ from one another only in their degree of development, and between the two all gradations may be found.

1. The Primitive Type of Cooperative Group: This variety of cooperative group is probably the only type of organization that would be possible of adoption at present by the practicing physicians of the smaller communities. A cooperative organization composed of general practitioners from the same community, each of whom has, perhaps, been attempting to cover the entire fields of medicine and surgery, is not only possible, as has been demonstrated in several instances, but is highly beneficial to both the community and to the individuals of the group. Such a group could at least afford those luxuries of yesterday which have become the necessities of today—a well equipped roentgen-ray and pathologic laboratory. An efficient clerical force could be engaged and more careful records kept: in short, the quality of medical service as rendered that community would suddenly take on a great improvement. This improvement would continue from year to year if each member of the organization should be encouraged to develop himself in the direction of one of the various specialties. Within a comparatively short time each member would be able to add something definite to the group in the way of special knowledge. Given the encouragement and the opportunity, one who perhaps had been only mildly interested in a certain type of medical work would soon become more proficient in that work than any one else in his community had ever been. As the work of each individual became more and more specialized, the organization would gradually undergo its complete metamorphosis into the ultimate type of cooperative group—a well balanced and comprehensive departmental organization, a mature specialist representing each important division of medicine and surgery.

2. The Departmental Type of Cooperative Group: In the larger cities there will be found numbers of physicians who, having devoted a certain number of years to acquiring a thorough training in some special field of medicine or surgery, are confining their private work to that specialty. As previously stated, these men are finding it increasingly difficult to do justice to many of their more or less obscure cases for the reason that the necessary cooperation from other especially trained men is either difficult or practically impossible to obtain. The close interrelationship between the various departments into which the practice of medicine has been rather arbitrarily divided, their interdependence and their overlapping are making it increasingly imperative that the work of these various departments be correlated. This can be accomplished only by a genuine cooperation on the part of those engaged in the exclusive practice of these specialties. An excellent demonstration of the truth of this statement is afforded by the somewhat recent and steadily increasing realization of the importance of dental cooperation in medicine. What had been considered in the past, a therapeutic field so sharply defined, so highly technical, so self sufficient as to justify its existence as a separate profession, has been shown to be intimately associated with every department of medicine. A negligible factor a few years ago, dental cooperation is now generally recognized as a necessity.

By merely combining their efforts along cooperative lines, a group of specialists practicing in the same community can at once assemble a finely balanced

organization for the scientific practice of medicine—an organization which would be in a position to offer the community a quality of medical service, and its members innumerable advantages, unobtainable by any other means.

How should an organization be assembled, granting that the necessary professional elements are at hand? As long as the three characteristics of all genuine cooperative groups, mentioned above, form the basis of the agreement, the details of organization will be easily disposed of by common consent. The group should occupy one suite of offices, preferably its own building devoted exclusively to its purposes. There need be no pooling of fees, the stumbling block so often obstructing progressive action in this direction. The pooling of professional talent, not fees, is the important consideration, and in this respect each member should add something perfectly definite. In this manner individual initiative may be preserved. Each department head is free to shape his own career in his own way. He is free, if he pleases, to develop about himself a subsidiary organization devoted to his specialty; in fact, he is much more likely to succeed in this accomplishment as a member of such a cooperative group than otherwise. There need be no friction between the members of such a group regarding the amount of work this or that member is doing, the amount of revenue this or that member is producing, or the number of hours he puts in at his work. All of these are fruitful sources of friction and discontent in the "common pool" type of cooperative group, to say nothing of the difficulties of such a group when it comes to apportioning its earnings among its various constituents in a manner satisfactory to all.

In addition to the private work of the various departments, such an organization can readily offer the profession a diagnostic service of the highest type. It can function perfectly as a diagnostic group of the departmental type.

As has been pointed out by Fairfield, a group of men practicing medicine in such close association will quickly develop "a policy of practice" which will redound to the credit and material advantage of all. Destructive practices will be eliminated, and the benefit of sound ideas emanating from this or that department will be shared by all. A common system of record keeping, embodying the original thought and requirements of each department, a common library, constant association with men of progressive thought, and justifiable pride in the institution will all tend to stimulate the investigative impulse, so sadly neglected by the individual practitioner. Osler's "sacred hunger" will become aroused, and food for its consumption will be at hand.

There is yet another advantage, and a great one, which may be enjoyed by the members of a cooperative group. I wish to touch only on its salient feature, as the plan is shortly to be made the subject of a detailed discussion by one of my associates, Dr. F. M. Turnbull, to whom full credit is due for its conception. Dealing, as he does, in that intangible commodity known as personal service, it is natural that a physician's greatest asset while he is in active practice is his "good will." On death or retirement his greatest asset usually becomes worthless, in spite of the fact that had he dealt in groceries or hardware instead of personal service, it might be worth a small fortune to him or to his heirs. By the cleverly conceived plan to which I refer, it becomes perfectly practicable "to conserve to each member of the group and especially to his heirs, in the event of his decease, the just fruits of his labors and attainments." This is accomplished through the successor of the deceased, who is enabled to purchase the department by partial payments over a number of years, the actual price being based on the previous earnings of that department and its earnings for the first few years under its new management. The benefits are paid to the former department chief, should he retire, otherwise to his heirs. The plan becomes possible of successful operation by the members of a cooperative group of the departmental type, for the reason that the "good will" of any of its departments, backed by the "good will" of the entire organization, becomes a very real and tangible asset, so real in fact that its actual cash value can be readily and accurately calculated at the end of a few years under the new management.

Knowingly running the risk of criticism at the hands of the "complacents" as a visionary enthusiast, I cannot deny myself a glimpse at the brilliant future in store for our profession when cooperation will become its watchword; when individual inefficiency will yield to the broader conceptions of organized effort; when the scattered and incoordinate efforts of individual practitioners will become a powerful constructive force for the purpose of medical research as well as for that of public and personal service; when a physician's success will be determined more by his ability and scientific attainment than by his willingness to stoop to questionable methods of competition; when an organized profession will become an impregnable barrier to the pernicious influences bent on its emasculation, through the destruction by legislative means of its right to independent existence and its power for public good.

CONCLUSIONS

1. Present methods of individual private medical practice are inefficient.

2. The individual practice of medicine, whether limited to a specialty or not, can no longer be considered self sufficient, because the demands of modern conditions cannot be met without constant cooperation from others.

3. Unless the medical profession prepares itself to meet its just obligations in providing an efficient medical service within the means of the average patient, the practice of medicine as a private enterprise will be legislated out of existence.

4. In order to meet its responsibilities in the ever increasing complexity of thorough medical work, the profession must reorganize itself into cooperative groups. The choice lies between this reorganization and some form of social medicine.

5. Under any form of state or social medicine thus far devised, the practicing physician is degraded, medical efficiency drops to the lowest level, and the public is forced to accept a miserable quality of professional service.

6. A cooperative group will succeed where the unaided individual must fail; it will meet its obligations to the patient and meet them efficiently; it will make contributions to medical sciences that could not be made otherwise; it will present a solid front to the political schemer or misguided enthusiast who would launch destructive legislation; it will insure its constituents a future of honorable service and adequate reward.

STUDIES IN THE PROPERTIES OF BLOOD PLATELETS *

A NEW METHOD FOR COUNTING PLATELETS

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The increasing difficulty in obtaining brilliant cresyl blue led us to search for another dye that might be used for the vital staining of blood. After experimenting with a large number of dyes, we finally adopted as the most satisfactory, easily procurable, vital stain crystal violet, pentamethyl pararosanilin hydrochlorid.[1] This dye, like brilliant cresyl blue, stains the leukocytes deep blue. The platelets and the reticular substance of young erythrocytes, which also are stained blue by brilliant cresyl blue, are stained a deep lilac by crystal violet. Hemoglobin is stained but faintly.

In the accompanying table are recorded the percentages of reticulated cells in twenty-nine different cases counted by Robertson's method,[2] using both brilliant cresyl blue and crystal violet. The two dyes give substantially the same figure in every case.[3] In fresh preparations, a rough estimate also may be obtained of the number of platelets as satisfactorily with crystal violet as with brilliant cresyl blue preparations.

Having demonstrated the efficacy of crystal violet as a stain for platelets, we endeavored to devise a method for the counting of platelets. From experiences with other methods of counting platelets (those of Wright and Kinnicut,[4] Gram,[5] Pratt [6] and Ottenberg [7]), we became convinced that satisfactory counts are possible only when these conditions are fulfilled: (1) The platelets must be discrete and evenly distributed; (2) they must present sufficient characteristic morphology to enable them to be readily identified, and (3) they must be stained. To fulfil these conditions it is of the utmost importance that the blood be obtained in a manner that prevents the initial stages of coagulation from ocurring, particularly thrombin formation, which, as Wright and Minot [8] have shown, permits the coalescence and viscous metamorphosis of platelets. It is of importance, secondly, that the diluting fluid contain a stain for platelets, that it be isotonic, that it be microscopically homogeneous, and that it contain some substance capable of preventing the formation of fibrin.

We believe that the technic and solution described herein fulfil these conditions and, as evidence of the efficiency of this method, we submit the table.

PROCEDURE

Blood is obtained from a vein and allowed to flow into a miniature transfusion tube, evenly paraffined, attached to a paraffined hypodermic needle, of 18 gage. The tube that we use is similar to the one described by Lee and Vincent,[9] and has a capacity of about 6 c.c. As the blood wells up in the tube, the tip of a "red count pipet" is introduced and blood drawn up to the 0.5 mark. The pipet is then immediately filled with the diluting fluid to the 101 mark and shaken for three minutes. A drop from this pipet is then mounted in a Türk counting chamber in the usual manner. At the end of three minutes a red count may be made. At the end of five minutes a white count may be made, counting 9 square millimeters of the field and using the high dry objective. When the specimen has stood for twenty minutes, all the platelets will have "settled" and a platelet count may then be made, using again the high dry objective and counting 4 square millimeters of the field. A second, and, if need be, a third drop is similarly counted and the average of the counts taken. Red, white, and platelet counts may be made as long as four hours after the taking of the specimen.

THE DILUTING FLUID

Six gm. of glucose and 0.4 gm. of sodium citrate are dissolved in 100 c.c. of distilled water, and the solution is filtered. To this are then added about 0.02 gm. of toluene red, dimethyldiamidotoluphenazin, sometimes also called "neutral red." Solution is slow but ultimately clear. To this is then added 0.1 gm. of crystal violet, and the solution is gently heated to 60 C. and held at that temperature for five minutes. It is allowed to cool slowly to room temperature and centrifuged for ten minutes at 2,000 revolutions a minute. The supernatant liquid is then filtered twice, each time through three thicknesses of No. 30 Whatman filter paper (dry). The solution is preserved by adding 0.2 c.c. of formaldehyd solution and then keeps indefinitely.

COMMENT

The Procedure.—Just what the first change is that takes place after blood leaves a vessel and just how soon that change occurs has never been determined. Yet, it is generally conceded that the coalescence of platelets is a very early change and a change that is irreversible. This change may be retarded to some extent by the addition of anticoagulants and by dilution. It is hastened by admixture of tissue juice which, by permitting the formation of thrombin, causes a clumping of platelets. Blood obtained in the manner described above is as unaltered as can be obtained and contains a minimal admixture of tissue juice. The method gives uniform results. Blood obtained from the ear in such a manner as to give a uniform flow yields usually, but by no means always, satisfactory specimens.

We recommend the use of a paraffined tube not only for purposes of platelet counting but also because it furnishes a convenient method of obtaining unaltered blood which may be used for determining coagulation time, and for making subsequent observations on the quality of the clot,[10] data that are often desired in cases in which platelet counts are done. If the tube is rinsed with cold water as soon as the blood has been allowed to run out, it may be used repeatedly without reparaffining.

* From the Medical Clinic of the Boston City Hospital. This is study No. 3 of a series of studies on the physiology and pathology of the blood from the Harvard Medical School and allied hospitals.
* The expenses of this research were in part defrayed by a fund subscribed by members of the visiting staff of the Boston City Hospital, and in part by a grant from the Proctor Fund of the Harvard Medical School.

1. In our experience the penta dye has been more satisfactory than the hexamethylpararosanilin hydrochlorid. We are indebted to the Will Corporation, Rochester, N. Y., for specimens of this and other dyes used in this work.

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3. At the suggestion of Dr. T. D. Cunningham we attempted to superimpose Wright's stain on films stained first with crystal violet after the method described by him (A Method for the Permanent Staining of Reticulated Cells, Arch. Int. Med. **20**: 405 [Oct.] 1920). Crystal violet alone is not satisfactory for this purpose. If, however, a 0.3 per cent. solution of crystal in 2 per cent. sodium tungstate solution (mordant) is used, fairly satisfactory preparations may be made. They are not, however, so clear as the preparations made with brilliant cresyl blue.

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RESULTS OF COUNTS WITH PRATT'S, OTTENBERG'S AND AUTHORS' METHODS

Case	Date	Diagnosis	Bleeding Time, Min.	Coagulation Time, Min.	Clot Retraction	Red Count: Standard Method	Red Count: Crystal Violet, Ear	Retic. Count, Fresh Smear: Cresyl Blue %	Retic. Count, Fresh Smear: Crystal Violet %	Platelets: Fresh Smear: Cresyl Blue	Platelets: Fresh Smear: Crystal Violet	Platelets: Ottenberg and Rosenthal	Platelets: Wright and Kinnicut	Platelets: Gram	Platelets: Pratt	Platelets: Crystal Violet, Ear	Platelets: Crystal Violet, Vein	White Count: Standard	White Count: Crystal Violet, Ear
1.	A.	9/ 2/20	Normal	2	6	Good	5,230,000	4,936,000	0.7	0.8	Normal	Normal	260,000	.....	.....	280,000	282,000	290,000	7,100	6,400
2.	G.	9/ 7/20	Normal	2¼	6	Good	5,220,000	.....	0.6	0.8	Normal	Normal	270,000	.....	.....	274,000	.....	250,000	9,800	9,600
3.	M.	9/ 7/20	Normal	1¾	7	Good	6,550,000	.....	0.9	0.8	Normal	Normal	240,000	.....	.....	222,000	.....	202,000	3,600	3,800
4.	Y.	9/ 3/20	Normal	2½	8	Good	5,760,000	5,800,000	2.1	2.4	Increased	Increased	250,000	.....	.....	233,000	242,000	270,000	9,000	10,200
5.	M.	9/ 8/20	Normal	2	7	Good	5,540,000	5,750,000	1.2	1.4	Normal	Normal	240,000	.....	.....	260,000	.....	246,000	11,100	12,000
6.	C.	9/ 9/20	Normal	2½	5	Good	5,350,000	5,080,000	1.0	1.1	Normal	Normal	240,000	.....	.....	266,000	.....	280,000	28,800	29,000
7.	J.	10/ 4/20	Normal	2	8	Good	4,820,000	4,680,000	....	....	.....	.....	276,000	.....	.....	284,000	.....	300,000	7,400	8,000
8.	O'H.	9/14/20	Normal	2	8	Good	4,800,000	4,770,000	....	....	.....	.....	280,000	.....	.....	274,000	.....	292,000		
9.	C.	9/17/20	Normal	2¼	8	Good	5,100,000	5,160,000	....	....	.....	.....	220,000	.....	.....	312,000	.....	328,000		
	Average platelet count for normal cases												255,111	.....	.....	268,333	262,000	284,222		
10.	S.	8/20/20	Secondary anemia, postpneumonic	1¾	9	Normal	3,810,000	3,832,000	0.5	0.8	Normal	Normal	238,000	265,000	250,000	212,000	270,000	294,000	6,700	6,500
11.	A.	8/21/20	Idiopathic purpura hemorrhagica	30	..	Poor	1,166,000	1,164,000	....	....	.....	.....	16,000	13,000	25,000	14,000	16,000	12,000	6,600	6,800
12.	H.	8/23/20	Secondary anemia; convalescent empyema	2¾	7	Fair	3,820,000	3,592,000	0.9	0.7	Normal	Normal	192,000	164,000	175,000	192,000	190,000	204,000	8,400	6,750
13.	K.	8/24/20	Convalescent arthritis	2¼	7	Normal	5,200,000	5,082,200	1.8	1.5	Normal	Normal	226,000	212,000	232,000	258,000	258,000	200,000	11,700	12,400
14.	C.	8/25/20	Myelogenous leukemia	3½	..	.....	.....	4,460,000	4.1	3.7	Normal	Normal	184,000	194,000	179,000	156,000	.....	178,000	116,400	120,800
15.	T.	8/25/20	Pernicious anemia	3¼	9	None	520,000	428,000	7.1	6.3	Diminished	Diminished	32,000	28,000	34,000	28,000	26,000	31,000	3,200	4,800
16.	M. H.	8/26/20	Pernicious anemia	3¼	9	None	460,000	460,000	1.6	1.0	Practically absent	Practically absent	172,000	136,000	126,000	156,000	116,000	118,000	1,700	1,300
17.	A.	8/26/20	Myelogenous leukemia	2¼	4	Poor	3,420,000	3,740,000	....	....	Slightly diminished	Slightly diminished	264,000	294,000	302,000	304,000	334,000	328,000	137,600	142,000
18.	S.	8/27/20	Chronic, not definitely pernicious anemia	12	8	None	1,270,000	1,176,000	4.6	5.0	Diminished	Diminished	32,000	28,000	32,000	44,000	30,000	28,000	3,200	3,600
19.	K.	8/28/20	Diabetes	1½	6	Good	4,800,000	4,752,000	0.3	0.5	Abundant	Abundant	276,000	310,000	257,189	296,000	304,000	282,000	7,000	7,000
20.	F.	8/30/20	Tuberculosis	1	9	Good	4,800,000	4,256,000	1.1	1.0	Slightly increased	Slightly increased	284,000	304,000	261,000	280,000	278,000	270,000	9,000	9,000
21.	S.	8/31/20	Chronic endocarditis	4	7	Good	5,250,000	4,830,000	1.8	1.6	Normal	Normal	244,000	224,000	202,000	210,000	222,000	216,000	6,500	6,600
22.	L.	9/ 1/20	Pernicious anemia	4¾	7	Good	440,000	.....	6.4	6.0	Normal	Normal	160,000	180,000	.....	188,000	.....	190,000	3,000	2,800
23.	G.	9/ 2/20	Myelogenous leukemia	1½	8	Poor	3,530,000	3,750,000	....	....	Greatly increased	Greatly increased	1,000,000	.....	.....	1,316,000	.....	1,400,000	138,200	134,000
24.	G.	9/ 3/20	Lymphatic leukemia	1¾	8	Poor	4,265,000	4,230,000	0.9	0.7	Diminished	Diminished	248,000	.....	.....	282,000	264,000	300,000	45,900	42,000
25.	F.	9/ 4/20	Idiopathic purpura hemorrhagica	13¾	7	Very poor	3,700,000	4,000,000	3.1	2.0	Greatly diminished	Greatly diminished	2,000	.....	.....	4,200	6,000	10,000	7,500	7,000
26.	L.	9/ 4/20	Hemophilia	3	40	Fair	5,710,000	5,744,000	1.0	1.0	Increased	Increased	180,000	.....	.....	165,000	152,000	180,000	7,700	8,200
27.	E.	9/ 7/20	Chronic empyema, secondary anemia	1	9	Good	3,700,000	3,600,000	0.7	0.7	Normal	Normal	.....	.....	.....	250,000	.....	264,000	8,200	8,800
28.	H.	9/ 8/20	Secondary anemia, chronic endocarditis	1¾	11	Good	3,880,000	4,216,000	1.1	0.9	Normal	Normal	.....	.....	.....	334,000	.....	326,000	7,100	7,300
29.	S.	9/ 9/20	Chronic nephritis	3	8	Good	4,720,000	4,870,000	2.1	1.9	Normal	Normal	.....	.....	.....	240,000	236,000	224,000	7,300	6,600
30.	H.	9/10/20	Pernicious anemia	2¼	8	Fair	2,100,000	2,150,000	9.1	10.8	Diminished	Diminished	.....	.....	.....	.....	.....	.....	3,400	3,000
31.	T.	9/10/20	Pernicious anemia	3½	6	Good	1,800,000	1,760,000	7.8	6.4	Diminished	Diminished	.....	.....	.....	.....	.....	.....	2,800	3,600
32.	McH.	9/10/20	Pernicious anemia	4	7	Good	900,000	940,000	2.0	2.3	Diminished	Diminished	.....	.....	.....	.....	.....	.....	1,600	2,000
33.	W.	9/20/20	Idiopathic purpura hemorrhagica	22	10	Poor	3,200,000	3,300,000	....	....	Diminished	Diminished	40,000	.....	.....	46,000	.....	36,000	12,000	11,200
34.	McC.	9/18/20	Hemophilia	3	50	Fair	4,600,000	4,640,000	....	....	.....	.....	220,000	.....	.....	270,000	.....	310,000	9,200	7,800
35.	D.	10/ 4/20	Hemophilia	3¼	30	Fair	4,700,000	4,600,000	....	....	.....	.....	220,000	.....	.....	260,000	.....	290,000	7,400	7,600
36.	L.	10/ 6/20	Hemophilia	3¾	55	Good	5,400,000	5,420,000	....	....	.....	.....	240,000	.....	.....	220,000	.....	270,000	6,800	7,200
37.	S.	10/ 8/20	Hemolytic jaundice	2½	6	Good	6,100,000	6,000,000	16.4	17.2	.....	.....	270,000	.....	.....	300,000	.....	346,000	10,000	9,400
38.	L.	9/15/20	Pernicious anemia	1¼	10	Good	3,200,000	3,180,000	....	....	.....	.....	101,000	.....	.....	116,000	.....	110,000		
39.	E.	10/ 4/20	Chronic platelet insufficiency, not definitely purpura hemorrhagica	21½	8	Poor	4,110,000	4,110,000	....	....	.....	.....	14,400	.....	.....	22,000	.....	18,200		
40.	F.	10/16/20	Pernicious anemia	2¼	6	Good	2,200,000	2,140,000	....	....	.....	.....	171,000	.....	.....	154,000	.....	166,000		
41.	OT	9/22/20	Polycythemia vera	3	10	Fair	9,500,000	9,300,000	1.0	0.8	.....	.....	800,000	.....	.....	980,000	.....	1,100,000		
42.	C.	9/23/20	Polycythemia vera	2¾	8	Good	7,100,000	7,080,000	1.4	0.9	.....	.....	312,000	.....	.....	318,000	.....	290,000		

The Solution.—A solution of crystal violet in water behaves as an electropositive suspensoid. The dye is easily precipitated by electrolytes, and is separable from the dispersion medium (water) by capillary analysis (i. e., it is adsorbed by filter paper). It also is cathodophilic and is coagulated by the addition of colloidal arsenous sulphid (electronegative). The addition of sodium citrate in quantities greater than 0.5 per cent. precipitates the dye completely. In smaller quantities, sodium citrate has no obvious influence on the dye and is effective in preventing the formation of thrombin, which would produce small strands of fibrin. The solution is rendered isotonic by the use of glucose, rather than a salt, in order to avoid electrolytic precipitation of the dye.[11] Toluene red is added for the purpose of staining the red cells.

It is a curious phenomenon that this solution, after one filtration through three thicknesses of filter paper, though microscopically homogeneous and though staining the platelets deeply, nevertheless frequently permits clumping of the platelets. From certain studies, not yet reported, which we have made on the colloidal properties of platelets, we believe this clumping is associated with an antagonistic action of the colloidal crystal violet. Further filtration, although it removes a considerable part of the dye and yields a fluid which stains the platelets less intensely, nevertheless always obviates the clumping phenomenon. We have had to be contented, therefore, for the present, with a solution that stains the platelets less intensely than could be desired, but which, nevertheless, stains them sufficiently well to enable one readily to distinguish them, not alone by their morphology, but also by their characteristic blue color. In carefully prepared specimens the platelets appear as discrete, uniformly distributed, pale blue, oval bodies, about one-sixth to one-third the size of a normal erythrocyte. Their cytoplasm is very finely granular, their periphery slightly irregular, and they show clearly the apron-like appendage that is so characteristic of platelets.

The Results.—In the table are recorded the results of simultaneous platelet counts made in thirty-six cases by three methods, namely, Pratt's, Ottenberg's and our method. In twelve other cases, in addition to these three methods, Gram's method and Wright and Kinnicut's method also were used. The counts obtained by the various methods as a rule do not differ substantially from one another, especially when one considers that, at its best, platelet counting is hardly more than an approximate procedure. Our method yields counts generally slightly higher than those obtained by the other methods, and especially so when the number of platelets is great. We regard this fact as very important. Even slight clumping inevitably reduces the platelet count obtained in a given specimen. Moreover, other things being equal, the greater the number of platelets, the more readily are they clumped. If, then, a series of counts is simultaneously done by different methods on a given specimen of blood, and if due care is taken in the preparation of the mount to exclude dust and other extraneous matter, the highest count will presumably be the most nearly correct one. That is to say, other things being equal, a high count is evidence of absence of clumping; a low count suggests clumping, even though no clumps are observed. Counts obtained by our method more nearly parallel those obtained by Pratt's method than those obtained by any of the other methods that were used.

In seventeen cases, simultaneous counts of platelets were made with our solution, obtaining blood from both vein and ear. The platelet counts made from ear blood are in agreement with those made on venous blood. However, whereas venous blood obtained as described above may always be depended on to yield a satisfactory specimen, it frequently happens that in ear blood specimens, clumping of platelets occurs. Such specimens, of course, invariably yield low counts. It is our opinion, however, that when a satisfactory (i. e., unclumped) ear blood specimen is obtained, by our method the resulting count is as near the true count as is that obtained from venous blood.

Simultaneous counts of red cells and white cells were made in thirty-five cases for the purpose of comparing the counts by our method with the counts obtained by the standard methods now in use. With respect to both red counts and white counts the results obtained are substantially the same by both methods.

SUMMARY

By this method for the simultanous determination of platelets, red cells and white cells, uniformly satisfactory preparations of platelets may be readily made and the platelets easily counted. It gives results for all three of the formed elements of the blood which closely parallel those obtained by standard methods.

11. In our earlier work we attempted to use urea in place of glucose for the purpose of rendering the solution isotonic. Solutions made up with urea permit the laking of the red corpuscles, as red corpuscles, in the absence of electrolytes, are permeable to urea. Compare Hamburger: Osmotischer Druck und Ionenlehre, Wiesbaden, J. F. Bergmann 1: 206, 1904.

SODIUM CITRATE TREATMENT OF THROMBO-ANGIITIS OBLITERANS*

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Thrombo-angiitis obliterans (Buerger's disease) is an inflammatory disease of the blood vessels of unknown origin. It affects all the coats of both arteries and veins. It begins usually in the blood vessels of the legs below the bifurcation of the popliteal artery, and from here spreads by continuity or appears independently in other vessels. It has a tendency to periodic relapses, and ends fatally when some important vessel, such as the renal or a large visceral artery, is attacked. In this country it is almost entirely limited to middle aged, male members of the Jewish race of Russian origin, but is said to be prevelant in Japan, where it is called "the gangrene of the young."

PATHOLOGY

The pathologic picture is primarily that of an acute inflammatory lesion of the intima with an occlusive thrombosis. This is followed by organization and canalization of the clot, with disappearance of the inflammatory products, and finally by a periarteritis which may bind firmly together artery, venae comites and accompanying nerves. The pathologic process is of such a character as to suggest a microbic origin. It has a tendency to self cure, shown by the attempted establishment of a compensatory circulation both by anastomotic routes and by the vascularization of the occluding thrombus.

SYMPTOMS

The symptoms are due to the gradual shutting off of the arterial blood by the occluding thrombus. The first

* Read before the Philadelphia County Medical Society, Dec. 22, 1920.

sign noticed by the patient, and usually attributed to rheumatism or flatfoot, is pain in the foot or calf of the leg while walking or standing. This pain is relieved when he sits down and holds up his leg, but recurs again on attempts to walk. This characteristic symptom is spoken of as "intermittent claudication." The affected foot takes on a purplish blue color when dependent, and blanches white when held horizontal; it feels colder than its fellow, and is sensitive to damp cold weather. As thrombosis develops, first the posterior and then the anterior tibial pulse is cut off, and a dry gangrene appears usually in the great toe and slowly spreads up the leg. As a result of the toxemia and pain, the patient becomes thin and anemic and takes on a classical septic appearance.

TREATMENT

The general plan of treatment has been to increase the capillary hyperemia and encourage the formation of a collateral circulation, namely: (1) elevation of the leg and exposure to dry heat; (2) Bier suction cylinders; (3) administration of vasodilator drugs—potassium iodid and nitroglycerin; (4) intravenous and subcutaneous injection of drugs to lessen blood viscosity—Ringer's solution and sodium citrate; (5) femoral vein ligation and arteriovenous anastomosis. Operative measures have proved failures. The other plans of treatment have all given some measure of success.

THE INTRAVENOUS SODIUM CITRATE METHOD

In 1915, Mayesima showed that there was a constant high viscosity of the blood in all types of gangrene. Acting on this suggestion, Koga used Ringer's solution hypodermically over long periods of time and reported many cures. Meyer [1] followed Koga's idea, and was the first to use sodium citrate intravenously in conjunction with Ringer's solution hypodermically. He used a small dosage over a short period of time, and many of his patients relapsed and had to undergo amputation.

I have employed the sodium citrate method for the last three years with encouraging results, using this technic: During the first month the patient is kept in bed with the legs constantly under a hot air electric light bath at 110 F.; 250 c.c. of 2 per cent. sodium citrate solution is given intravenously every second day. The second month the interval of injection is lengthened to every third or fourth day; daily leg massage is given, and the patient is put in a wheel chair with the feet hanging down a short time each day; or, if the case is not advanced, some walking is allowed. The intervals of injection are now gradually lengthened until at the end of a year the patient gets one every two weeks. Increased walking is permitted as the symptoms subside and evidence of a functional collateral circulation appear. Potassium iodid, 10 drops three times daily, is given during the whole course of treatment. The iodid is always well borne. The length of treatment is regulated by the results obtained in establishing a functional collateral circulation.

The effects of this plan of treatment have been: (1) relief of pain after the second injection; (2) the checking of the gangrene and spontaneous amputation of the dead tissue; (3) healing of indolent, painful ulcers, and (4) a slow but sure establishment of a collateral circulation, as shown by improved color, warmth of the foot, the swelling of the subcutaneous veins, and a strengthening of any existing pulse. In two cases there occurred a reestablishment of an anterior and a posterior tibial pulse.

1. Meyer, Willy: Ann. Surg. 63: 280 (March) 1916.

The injections are given in the veins of the arm through a curved slip joint needle, by the usual skin puncture method. No bad after-effects were noted.

Six patients in all have been treated. Two have resumed their regular occupations. One is walking around again functionally able, but has no financial urge to set him to work. One with a previous leg amputation has resumed his occupation as a playwright. One case is progressing satisfactorily. In the sixth case, a desperate one, the patient walked after one year of treatment, but suffered a relapse after four months of walking. He is now yielding to a second course of injections.

SUMMARY OF CASES

Case 1.—L. K., a delivery wagon driver, aged 53, who had had symptoms for one year, was bedfast on admission three years ago, both legs were affected, there was gangrene of one great toe, and there was loss of both posterior tibial and one anterior tibial pulse. He received fifty injections and was functionally cured. He walks without pain or limp. There is one full anterior tibial pulse. No treatment has been given for one and one-half years.

Case 2.—S. K., a mill laborer, aged 51, had presented symptoms for three months. On admission, one and one-half years ago, he could take only a few steps. Both legs were affected. There was no gangrene. There was loss of both posterior tibial and one anterior tibial pulse. The patient received eighty-five injections and was functionally cured. He is working again. The absent anterior tibial pulse reappeared after one month of treatment. No treatment has been given for the past month.

Case 3.—A. S., a merchant, aged 57, had had symptoms for one and one-half years. On admission, one and one-half years ago, he was bedfast; both legs were affected; there was gangrene of one great toe and threatened gangrene of both feet. There was loss of both posterior and both anterior tibial pulses. The general condition was very bad. He received sixty-nine injections, and the condition was improved. He walked after one year of treatment, but suffered a relapse after walking four months. He is now responding to a second course of injections. There was reappearance of one posterior tibial pulse after seven months' treatment.

Case 4.—D. G., a tailor, aged 53, who had had symptoms for eighteen years, was bedfast on admission fourteen months ago; both legs were affected; there was gangrene in the tip of one great toe, and loss of both posterior tibial and one anterior tibial pulse. He received fourteen injections. He is functionally cured. He has been doing his regular work for one year, and walks any distance without pain. There is no return of the absent pulse. He has a perfect collateral circulation.

Case 5.—W. S., an actor and playwright, aged 34, had had symptoms for three and one-half years. On admission, seven months ago, he could walk a few steps with crutches. Both legs were affected. The left leg had been amputated below the knee six months before admission. The stump had a chronic ulcer at the flap edge, 2 by 3 inches. One toe of the right foot had been amputated two and one-half years ago. The right foot was blue and cold and in a state of impending gangrene. There was no anterior or posterior tibial pulse. The patient's general condition was bad. He received forty-eight injections. The stump ulcer healed in three weeks. He walks well on his crutches. There has not been any pulse return, but a functional collateral circulation is forming. The patient has resumed his occupation as a playwright. He is still under treatment.

Case 6.—A. V., a laundry ironer, aged 30, who had symptoms for four and one-half years, could walk only a few steps on admission five months ago. Both legs were affected. There was an area of gangrene on the side of one great toe. There was loss of both posterior tibial and one anterior tibial pulse. He received thirty injections, and reports that he can walk six blocks. The collateral circulation shows steady improvement. There has not been any return of the lost pulse. He is still under treatment.

CONCLUSIONS

One cannot hope for a full functional regeneration in such badly damaged members. But results in these six cases would seem to show that suffering can be relieved; that the progress of an otherwise fatal disease can be checked; that amputation can be avoided, and that a certain percentage of patients can be returned to active life, and others fitted in some measure to help themselves.

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BEHAVIOR OF BLOOD PRESSURE DURING THE USE OF THE STOMACH TUBE *

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The occurrence of epistaxis during stomach lavage in a case of arterial hypertension suggested this brief study of the temporary effects on blood pressure caused by the passage of the stomach tube. Aside from the known effects of mental excitation, muscular activity and straining, the question presented itself as to the part that the irritation of the buccal, esophageal and gastric mucosa played in causing temporary increase in blood pressure quite constantly observed. Of interest has also been the possible significance of sudden rises in blood pressure as a possible cause of vascular accidents.

CONDITIONS OF EXPERIMENT

Blood pressure readings were taken in a series of cases in which stomach lavage was performed as a routine diagnostic and therapeutic procedure. The only selection made was to include cases in which there was hypertension. Readings were made with the spring sphygmomanometer which had been checked with a mercury sphygmomanometer, immediately before passage of the stomach tube, while the tube was in the stomach and immediately after its withdrawal. The patients were in the sitting posture, and the same arm was used for the determinations in each case.

TABLE 1.—BLOOD PRESSURE DETERMINATIONS IN GROUP 1 A

Case	Systolic	Diastolic		Systolic	Diastolic
1	100	65	to	120	80
2	120	85	to	150	110
3	130	80	to	160	110
4	112	95	to	132	90
5	105	85	to	125	100
6	130	90	to	160	120
7	126	..	to	164	...
8	112	..	to	135	...
9	130	80	to	170	100
10	110	80	to	130	90
11	115	90	to	115	90

TABLE 2.—BLOOD PRESSURE DETERMINATIONS IN GROUP 1 B

Case	Systolic	Diastolic		Systolic	Diastolic
1	120	95	to	160	...
2	130	80	to	170	100
3	122	100	to	160	130
4	130	90	to	170	110
5	120	..	to	160	...

DATA OBTAINED FROM BLOOD PRESSURE DETERMINATIONS

Group 1 includes sixteen cases in which the systolic blood pressure was within normal limits. In Subdivision A are included eleven of these cases in which there was virtually no straining or mental excitation. The average increase in systolic blood pressure in ten cases was 22 per cent., with a minimum increase of 20 mm. of mercury and a maximum of 40. In Case 11 the blood pressure was not increased. Subdivision B includes five cases in which straining was marked, as is frequently seen in cases in which the stomach tube has not been passed before. The average increase in systolic blood pressure was 31 per cent., with a maximum increase of 40 mm. of mercury. The blood pressure returned to the former level within thirty minutes in all cases observed, and in a majority within ten minutes after withdrawal of the tube.

Group 2 includes four cases in which there was arterial hypertension. The maximum increase was 70 mm. of mercury and was associated with epistaxis. The average increase was 33 per cent.

Group 3 includes three cases with hypertension in which pilocarpin was administered hypodermically in lossage sufficient to show physiologic action, as evidenced by salivation, sweating and slow pulse. The average increase was 19 per cent.

Group 4 includes cases with hypertension under the influence of atropin, with an average increase in systolic blood pressure of 29 per cent.

TABLE 3.—BLOOD PRESSURE DETERMINATIONS IN GROUP 2

Case	Systolic	Diastolic		Systolic	Diastolic
1	175	95	to	235	...
2	212	..	to	260	...
3	150	..	to	210	...
4	180	120	to	250	...

TABLE 4.—BLOOD PRESSURE DETERMINATIONS IN GROUP 3

Case	Systolic	Diastolic		Systolic	Diastolic
1	178	120	to	220	140
2	195	120	to	230	140
3	145	90	to	170	120

TABLE 5.—BLOOD PRESSURE DETERMINATIONS IN GROUP 4

Case	Systolic	Diastolic		Systolic	Diastolic
1	190	90	to	260	140
2	145	90	to	170	120
3	195	125	to	260	150

COMMENT

The increase in blood pressure observed in these cases may be due to a combination of causes. Undoubtedly the excitement attendant on such a procedure in certain types of cases is an important factor. That there is an added factor is seen in those cases in which the psychic element is lacking, for it is found that in those cases in which passage of the stomach tube has become almost habitual and in which straining and excitation are absent, there is a constant and average increase in systolic blood pressure of from 20 to 30 mm. of mercury which is maintained as long as the tube is in the stomach. It may be suggested that mechanical irritation of the buccal, gastric and esophageal mucosa by reflex causes increase in blood pressure. Mechanical irritation of the rectal and vaginal mucosa is asserted by Tigerstedt [1] to cause lowering of blood pressure. The lessened increase in those patients under the influ-

* From the Department of Medicine, University of Minnesota Medical School.

1. Tigerstedt: Lehrbuch, pp. 528-529.

ence of pilocarpin, compared with those in which it has not been given, may be of significance. When the inhibitory mechanism of the heart is under stimulation, it might be expected that any reflex would cause a smaller increase in blood pressure than when the heart was not under such increased inhibition. On the other hand, the lessened vagus inhibition following atropin does not cause any marked alteration in the percentage of increase in systolic blood pressure, which in the hypertension cases under observation is virtually the same with or without atropin, as shown by 33 per cent. increase in Group 2, and 29 per cent. in Group 4. It therefore appears that whatever increase in blood pressure occurs through reflex action cannot be altered through lessening of vagus inhibition by the use of atropin.

CONCLUSIONS

1. There is, as a rule, an increase in blood pressure of from 20 to 50 mm. of mercury with the passage of the stomach tube.
2. There is a greater increase in those cases in which there is retching.
3. The increase in blood pressure is not dependent on straining or mental excitation.
4. The percentage of increase is greater in cases in which there is hypertension.
5. Cases in which there is hypertension when under the physiologic effects of pilocarpin giving vagus inhibitory action show an average increase in systolic blood pressure which is less than the increase when pilocarpin has not been given. Similar cases with diminished vagus inhibition following atropin show no marked variation in the average increase from that noted in cases without atropin.

THE FIRST HEART SOUND AND THE PRESYSTOLIC MURMUR *

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A presystolic murmur heard over the apex of the heart has long been regarded as strong evidence of stenosis of the mitral valve. But experience has shown that a presystolic murmur may be recorded in some cases in which postmortem examination discloses intact mitral curtains. Thus, in an analysis of forty-six necropsies in which no stenotic change of the mitral valve was demonstrated although the presence of a presystolic murmur had been recorded, Phear,[1] in 1895, found that in seventeen there was aortic regurgitation, in twenty adherent pericardium, and in nine dilatation of the left ventricle.

Furthermore, there is a type of normal heart which closely simulates what in the literature is described as one variety of mitral stenosis. On this point Henry Sewall,[2] in an excellent article, writes:

> In the structurally normal heart, especially in conditions of excitement, the first sound frequently begins with a crescendo tone, simulating closely the faint and brief presystolic murmur or acute accent initiating the first sound in certain stages of organic mitral stenosis.

Lastly, at times the first heart sound is so modified by a systolic murmur that it is sometimes described as "a presystolic murmur ending in a sharp first sound" and, if the murmur continues further, "followed by a systolic murmur." I have learned to interpret this as one of the ways in which an apical systolic murmur may modify the first sound. My contact with other physicians convinces me that the mistake, for such I am satisfied it is, of terming the first part of this systolic murmur as presystolic is quite common.

Can the foregoing facts be reconciled? To do so is not without interest and is of obvious value in enabling us to distinguish between heart conditions differing very considerably in prognosis and treatment.

PHYSIOLOGIC AND OTHER DATA

Let me cite certain observations made in the physiologic laboratory and elsewhere.

As the presystolic murmur is generally held to be a direct result of auricular contraction (I am not aware of any dissenting opinion), it seems well to consider for a moment a few facts pertaining to the physiology of the auricles. The report of Yandell Henderson,[3] published in 1906, gave new light on the function of the auricles. He found that the ventricles are filled from the auricles so rapidly after the opening of the auriculoventricular valves, i. e., in the first part of diastole, that in hearts beating at a slow rhythm ventricular filling may be complete, and a period of quiescence, termed diastasis, may ensue before the onset of auricular systole. Henderson asserted, therefore, that auricular systole plays a part which is mechanically of very minor importance. The auricles are to be regarded, in his opinion, as elastic reservoirs rather than as force pumps.

The accuracy of Henderson's work was denied in 1910 by Straub;[4] but Henderson[5] was soon able to reaffirm the essentials of his original observations. Within the next few years a number of physiologists reported studies on the function of the auricles; but while these papers[6] contain much valuable information, they do not appear to have shaken the truth of Henderson's statement made in 1906.

The intra-auricular pressure,[7] as a result of experimental observations, has been estimated to reach a maximum of from 2[8] to 15[9] mm. of mercury, whereas we know that that of the left ventricle reaches that of the systemic circulation, from 120 to 150 or more. It is important to remember this relatively low pressure in the auricle, since pressure is a factor in giving velocity to the blood stream, and the velocity of the flow, again, is a prominent factor in the production of murmurs when the other conditions are present.

As the blood passes rapidly from the auricle to the ventricle, the curtains of the auriculoventricular valves are gradually floated upward until they are nearly shut. Auricular systole will then complete the closure of the auriculoventricular valve; but it is known that an auricular contraction is not essential to perfect valve closure, as the systole of the ventricle will effectively close the

* From the Heart Clinic of the Boston Dispensary.

1. Phear, A. G.: Lancet **2**: 716, 1895.
2. Sewall, Henry: Am. J. M. Sc. **88**: 10, 1909.
3. Henderson, Yandell: Am. J. Physiol. **16**: 353, 1906.
4. Straub: J. Physiol. **40**: 378, 1910.
5. Henderson, Yandell: Am. J. Physiol. **31**: 356, 1912.
6. Gesell, R. A.: Am. J. Physiol. **20**: 32, 1911; **40**: 267, 1916. Wiggers, C. J.: Ibid. **33**: 13, 1914; **40**: 218, 1916; **42**: 133, 141, 1916. Dean, A. L., Jr.: Proc. Soc. Exper. Biol. & Med. **13**: 6, 1915; Am. J. Physiol. **40**: 206, 1916. Erlanger, J.: Ibid. **40**: 150, 1916.
7. Many physiologists do not directly give figures for the auricular pressures. Much of the experimental work has been carried out on large dogs; and since the intraventricular pressures were found to be well over 100 mm. of mercury, as it is known to be in human beings, it seems reasonable that the figures obtained for the intra-auricular pressures in these animals give a reasonable criterion of those in man. For the right auricle Porter obtained a somewhat higher figure, namely, 9 mm. of mercury.
8. Porter, W. T.: J. Physiol. **13**: 513, 1892.
9. Burton-Opitz, R.: Text-Book of Physiology, Philadelphia, W. B. Saunders Company, 1920, p. 300.

valve. This, of course, is the procedure when normal auricular contractions are replaced by fibrillation.

The closure of the mitral opening is accomplished by a twofold mechanism—the approximation of the valve curtains and the contraction of the surrounding musculature. In case the muscular element is deficient, the valve may be insufficient, even though the mitral curtains are structurally normal. This may be observed in the dilated heart or in febrile conditions in which the tone of the muscle is impaired. In the normal heart, Hesse [10] estimated that the size of the base and the area of the auriculoventricular valves is one-third greater in diastole. The valve curtains would be unable to close the aperture unless aided by the constricting action of the muscular contraction.

The first heart sound is largely muscular in origin.[11] Burton-Opitz writes: "All contracting muscle tissue emits a sound which is caused by the molecular shifting of its substance, and the displacement of its fibers. The intensity of this sound must therefore be proportional to the mass of the tissue involved as well as its power of contraction." It begins with the "setting" of the ventricles, and continues until the highest intraventricular pressure has been produced. The systole of the ventricles then continues in silence the discharge of blood into the aorta and pulmonary artery for a period of from 0.15 to 0.25 second until its sudden termination, which is marked by the second sound."

Burton-Opitz states that the contracting auricles also emit a sound which, however, remains below the threshold of audibility, owing to the small mass of tissue involved.[12]

Lewis [13] has shown that the first heart sound is crescendo and then diminuendo. The studies of the heart sounds by Wiggers and Dean [14] also produced graphic records in which the vibrations show the same crescendo character.

The loudness and intensity of the first sound has been found [15] to be directly proportional to the intracardiac tension, and especially to the tension developed during the isometric period, i. e., before the opening of the semilunar valves.

According to Howell,[16] the size of the heart increases during exercise, apparently because of the greater venous inflow. Shortly after the cessation of exercise, the heart resumes its former lesser size, as the increased rate accompanying the exercise continues for a short period and the heart is now emptied faster than it is filled.

To turn next to the systolic murmur heard at the apex: It has been found in the use of the electrophonograph that at times the murmur will be recorded and the sound not, or vice versa, although the ear may detect the presence of both. But the reverse may be true. On this point Lewis [13] writes: "When a systolic is present with the first sound, the microphone records both; the ear detects one or the other and exaggerates it according to the degree and direction in which the mind is concentrated."

How a systolic murmur may modify the first sound: *A*, time (represented by dotted line) during which a systolic murmur may occur; *B*, systolic murmur masking first part of first sound and continuing after it; *C*, systolic murmur inaudible after first sound.

As regards the quality of murmurs, a word should be said. I am in accord with the often repeated dictum that the quality of a given heart murmur does not per se disclose the extent of valvular damage, nor does it make certain the presence of the latter. But some experimental studies [17] on the production of heart murmurs reaffirm [18] that the velocity of the blood flow past the point at which the murmur is produced is important. In other words, the intensity of a murmur, other factors being equal, varies directly with the velocity of the stream. Furthermore, as can readily be understood, the velocity of the blood flow is directly proportional to the pressure, and especially to the difference between the pressure on the near side and beyond the point of murmur production.[19]

COMMENT

An understanding of how a systolic murmur may modify the first sound is important in attempting to reconcile the apparently discordant facts stated at the beginning of this paper. A systolic murmur may occur with the first sound and persist throughout systole, i. e., until the second sound. This may be represented diagrammatically. In the condition marked *A*, the dotted line ("systole") indicates the time during which the systolic murmur may occur. The murmur may mask the first sound in whole or in part. At *B*, the murmur is represented as masking the first part of the sound and continuing after it. In the condition marked *C*, it is not audible after the first heart sound.

It is, however, with the murmur heard in early systole that this paper is dealing. Such a murmur is indicated in the diagram as occurring with a longer systolic murmur in *B* and alone in *C*. As observed clinically I am conscious that it commonly has an intensity and pitch which are inconsistent with the velocity of the flow which may conceivably be produced by the relatively low pressure (i. e., from 2 to 15 mm. of mercury) found in the left auricle, while they are quite in accordance with a stream velocity which should arise as a result of contraction of the left ventricle. In my experience, no murmur occurring at any period of diastole due to the blood passing through a stenosed mitral valve has any such quality. These true diastolic murmurs of mitral stenosis are less marked in intensity and are of a lower pitch. The matter of pitch is important enough to cause sometimes a failure to detect them in auscultation unless the auscultator uses a bell-shaped attachment to his stethoscope.[20] The difference in quality of the diastolic murmur arising at the aortic valve, as compared with the diastolics of mitral origin, may well be explained by the fact that a much greater pressure (that of the first part of the aorta) is concerned in the production of the former. Furthermore, the work of Henderson,[3] referred to earlier in this paper, suggests the relatively small volume of blood propelled past the mitral valve by auricular systole, when present.

As regards the time of the presystolic murmur of mitral stenosis and that represented in the diagram as

10. Hesse, F.: Arch. f. Anat. u. Entwcklngsgeschicht., 1880, p. 328.
Prince, Morton: M. Rec. 35: 421, 1889.
11. Flack, M., and Hill, L.: Textbook of Physiology, New York, Longmans, Green & Co., 1919, p. 154.
12. An exception to this occurs in some cases of heart block.
13. Lewis, Thomas: Quart. J. Med. 6: 446, 1912-1913.
14. Wiggers, C. J., and Dean, A. L., Jr.: Am. J. Physiol. 49: 476, 1917.
15. Wiggers, C. J.: Factors Determining the Relative Intensity of the Heart Sounds in Different Auscultation Areas, Arch. Int. Med. 24: 471 (Nov.) 1919.
16. Howell, W. H.: Textbook of Physiology, Ed. 6, Philadelphia, W. B. Saunders Company, 1915, p. 545.
17. Unpublished.
18. Chauveau, M. A.: Gaz. méd. de Paris, Series 3 13: 247, 1858.
19. Marey, F. J.: La circulation du sang, Paris, 1881, p. 647.
20. Reid, W. D., and White, P. D.: Med. Clin. N. Am., September, 1920, p. 383.

early systolic, I would suggest that clinically one may appreciate that the former murmur occurs at a slightly earlier period [21] in the heart cycle, namely, the time of auricular systole. It is no new fact that in the diagnosis of mitral stenosis it is safer to rely on the presystolic murmur which is definitely late diastolic in time. It is, of course, not always present—never when the auricles are fibrillating—and is usually observed as a presystolic accentuation of a murmur occurring earlier in diastole.[22]

Now, is there a possible explanation of the early systolic murmur, not infrequently confused with a murmur presystolic in time? It should be recalled that the approximation of the borders of the mitral orifice is an essential part of successful closure of the valve. Since the valve curtains do not increase in size to meet the extra need, anything interfering with this muscular element will cause delay or failure completely to shut off the aperture with a resulting mitral insufficiency, which in turn will be noted in auscultation by a systolic murmur produced by the stream of blood which regurgitates to the auricle. It should be noted that the patients presenting a presystolic (so-called) murmur in life but with no structural change in the mitral valve on postmortem examination, as reported by Phear [1] and others, are all those with large hearts. It may be said to be the rule that when cardiac enlargement is present, some degree of dilatation occurs. It is quite conceivable, therefore, that in cases in which there is some dilatation of the left ventricle, an imperfect closure of the mitral valve may result from inadequacy of the muscular element. It is suggested that in dilatation such as obtains in certain large hearts, the valve may be completely closed only after systole has been under way for a short period, owing to the increased distance from which the periphery of the mitral valve must be approximated. Such a conception will explain a murmur of regurgitation in early systole (as in condition *C* of the diagram. The first sound, as has been observed in phonocardiography, is held to be present, but its initial components may be masked by the murmur.

The normal heart with the crescendo tone, so well described by Sewall,[2] is in agreement with the statement of Lewis [13] that the first heart sound is crescendo and then diminuendo. In the phonocardiograms obtained by this author and by Wiggers and Dean,[14] the crescendo character of the first sound is evident. Only a certain exaggeration of this feature is needed to account for the first heart sound which commences with a crescendo tone.

Since the effect of exercise is to cause the heart to dilate,[16] it is possible that in some normal hearts the primary results of exercise or excitement may be an early systolic murmur produced as described above. It is suggested, as theoretically possible, that in some normal hearts following exercise or excitement, there may be some degree of incoordination of the muscular element of the closure of the mitral orifice so that this is perfected only after systole has been under way for a short period. If this is true, the mitral valve might be temporarily insufficient and an alteration of the first sound or an early systolic murmur could result.

It is not easy to apply with conviction Wiggers' [15] observation that the intensity of the first sound is directly proportional to the intraventricular tension and especially to that produced in the isometric period. Yet it is not infrequent to note a sharp or accented first sound in cases of organic mitral stenosis. To explain this as due to an exaggeration of the normal crescendo character of the first sound, noted above, stops short of giving the reason why. To theorize a bit: It is known that in mitral stenosis the ventricular filling may be incomplete, especially when the heart rate is rapid. In such case it is conceivable that the first part of ventricular systole may be expended in shutting down on the blood content; and thus a slight delay or a lengthening of the period necessary to produce the intraventricular tension, which Wiggers states is directly related to the intensity of the first sound, would account for a crescendo character or an accentuation of the sound. In the case of the large hearts in which an early systolic murmur is present, owing, as I have suggested, to an insufficiency of the mitral valve, the final complete closure of the valve would terminate the murmur with its masking effect on the initial phase of the first sound. The latter would then become audible abruptly at the time of its maximum vibrations, and therefore would appear sharp. It may be that the size of these vibrations is not greater than normal, but the obscuring of the lesser initial vibrations could reasonably account for the impression of increased intensity or sharpness. Further work in phonocardiography may clear up some of these points.

21. Before the apex beat.
22. Reid, W. D., and White, P. D.: Med. Clin. N. Am., September, 1920, p. 379.

SUMMARY

In the foregoing I have presented three apparently discordant facts concerning the first heart sound and the presystolic murmur, have cited certain data bearing on them, and have suggested a possible explanation.

CONCLUSIONS

1. To term the murmur that is noted in some large hearts without structural change in the mitral valve early systolic rather than presystolic is more consistent, in consideration of its intensity and pitch, with a murmur produced by a pressure such as obtains with ventricular systole.

2. It is safer to designate as "presystolic" only such murmurs as are definitely late diastolic in time.

3. The early systolic murmur (sometimes wrongly termed presystolic) occurs in large hearts, and it is suggested that it is produced by an insufficiency of the mitral orifice due to a delay or failure of the muscular contraction in approximating the margins of the opening.

4. The crescendo tone sometimes characterizing the first heart sound may be merely an exaggeration of the normal.

5. Owing to the physiologic tendency of the heart to dilate somewhat as the primary effect of exercise or excitement, it is suggested that a murmur occurring in early systole (and produced as described in Conclusion 3) may sometimes be obtained in the normal heart after exercise or excitement.

510 Commonwealth Avenue.

Venereal Disease in the U. S. Navy.—For the eight years preceding the World War the venereal disease rate in the U. S. Navy was approximately 165 per thousand enlisted men. During the fiscal year ended June 30, 1918, the rate had dropped to 99 per thousand, and for the period from July 1 to Dec. 30, 1918, the rate was 74 per thousand enlisted men. Some of the agencies that have contributed to this reduction in morbidity were: (1) closing bawdy houses and saloons to sailors; (2) provisions for wholesale recreation and entertainment; (3) activities of public health authorities in removing from society known carriers of infection, and (4) the carrying on of a vigorous educational propaganda.

SECONDARY PULMONARY HYPERTROPHIC OSTEO-ARTHROPATHY

REPORT OF A CASE

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This case is reported, first, because the condition is comparatively rare, and secondly, because the patient presents virtually all the cardinal signs and symptoms that are characteristic of secondary hypertrophic osteo-arthropathy. This condition is not well known generally, and many cases, I believe, are overlooked because of lack of acquaintance with the definite group of symptoms and pathologic changes. In institutions in which lung lesions, such as bronchiectasis, chronic pleuritis, tuberculosis and abscesses of the lung, are numerous, this disease is seen frequently enough as a complication. In the average private and hospital practice, on the other hand, hypertrophic osteo-arthropathy is very uncommon. Men of wide experience have told me that they have not seen a single case. Yet so characteristic are the evidences of this disease that, once a case is seen, the condition will always be readily recognized.

REPORT OF A CASE

History.—L. S., a man, aged 53, a tailor, was referred to me about a year ago for pain in both knees, and difficulty in walking. He had been apparently well until about fifteen years ago. He was never very stout, his highest weight having been 125 pounds, but he was active, worked hard, was agile and, except for frequent attacks of what appears to have been pharyngitis or tonsillitis, he had had no illnesses. About fifteen years ago he had a chill, developed a cough, and rapidly lost weight. He applied to the board of health for advice. There he was told that he had "lung trouble." Treatment was prescribed, and while under observation he gained weight and his pulmonary condition improved. He soon resumed work and remained free from symptoms referable to his chest until two years ago. Some time after the onset of the pulmonary trouble he developed club-fingers. These caused no inconvenience, and no attention was paid to them. This clubbing of the fingers was noted by one of his sons, who states that the condition has been in existence for at least ten years, and possibly longer. It had also been noticed by the patient's wife that during the winter months the distal phalanges of the fingers were frequently very pale. Two years ago he had a chill and developed a sore throat. This lasted for three or four days. Following this he developed pain in both feet and in his left knee, and stiffness of his fingers. These symptoms became intensified, and about one year prior to examination he noticed that his limbs were tender to the touch. About this time he developed a laryngitis, became hoarse, and the hoarseness has continued. Although he suffered a good deal of pain and stiffness in his limbs, he was able to be up and about and walk until three months before I saw him.

Fig. 1.—Swelling of hands and fingers, and parrot-beak nails.

First Examination.—When seen, July 22, 1920, the patient was in fair general condition. The most evident abnormalities were: (1) swelling of the lower limbs from the middle of the thighs down to and including the toes; (2) swelling of the upper limbs from the elbows down to and including the fingers; (3) clubbing of the fingers and toes and (4) globular enlargement of the tip of the nose.

Right Lower Extremity: There was moderate swelling of the knee, leg and foot. There was enlargement and engorgement of the superficial veins resulting in typical varicose veins. There was a distinct bluish tinge in the color of the leg, and a very distinct pallor of the ends of the toes. The distal extremities of the toes were globular, thus producing club-toes. The nails were curved sharply downward with longitudinal ridges producing the so-called parrot-beak deformity. There was very marked tenderness of the thigh, most intense near the knee, and marked tenderness of the bones of the leg and foot. There was no palpable irregularity of the tibia or of the bones of the foot. The swelling was due in part to an edema, but chiefly, apparently, to thickening of the subcutaneous tissue. The knee was moderately swollen and limited in its mobility. Extension was limited to 170 degrees, and flexion to about a right angle. The ankle was moderately swollen, and all of its motions were partly restricted. Manipulation of the knee and ankle was painful. The restricted mobility and the enlargement of the knee and ankle were due to thickening of the periarthritic tissues. There was no evidence of fluid in either joint.

Left Lower Extremity: This showed virtually the same pathologic changes as the right lower limb, namely, swelling of the knee, leg and foot, varicose veins, clubbing of the toes, parrot-beak nails, pallor of the distal extremities of the toes, thickening and tenderness of the thigh, leg and foot, and restricted mobility of the knee and ankle. The left foot differed from the right foot in only one particular, namely, that it was in rigid valgus.

Right Upper Extremity: There was slight swelling of the forearm and hand, and very distinct swelling, or rather thickening, of all of the fingers. The tips of the fingers were globular, producing typical club-fingers. There was very distinct parrot-beak deformity of the nails, that is, typical incurvation of the nails with longitudinal ridges. There was a peculiar pallor of the fingers which began at the first interphalangeal joint and became intensified at the tips of the fingers. There was very distinct tenderness of the arm and forearm to deep pressure, and marked tenderness of the bones of the hand and fingers. The elbow was not swollen, but extension was limited to about 160 degrees; flexion was complete. The shoulder appeared normal; its mobility was unchanged, and it evidently was not involved in the pathologic process affecting the rest of the limb. The tenderness of the fingers was distinctly limited to the shafts of the phalanges. The same thing was true of the radius, ulna and humerus. Only the shafts of these bones were tender.

Left Upper Extremity: This limb showed exactly the same changes as were noted in the right upper extremity: swelling of the hand and fingers, clubbing and pallor if the fingers, parrot-beak nails and tenderness of all of the long bones.

The nose showed distinct enlargement of the tip, which was more or less globular in outline. The face was symmetrical, and there was no enlargement of the malar regions, and no tenderness or other palpable abnormality of the bones of the face.

The man was able to walk without assistance and without a limp. He did not show lesions, clinically recognizable, of other parts of his skeleton besides the extremities. The skull was not enlarged, deformed or tender. Neither scapula was tender or deformed. His back was symmetrical, his spine

was in the median line, and motions of the spine were free and painless. The left ribs were somewhat tender near the costal cartilages, but the right ribs were not tender, and none of the ribs showed any palpable irregularity.

Roentgen-ray examination of the entire skeleton showed changes only in the shafts of the long bones, namely, both humeri, both ulnae, both radii, the metacarpal bones, the phalanges of the fingers, both femora, both tibiae and fibulae, the metatarsal bones, and the phalanges of the feet. The tarsal and carpal bones, the bones of the skull, both scapulae, the clavicles, the ribs, patellae and the extremities and articular surfaces of the long bones were unaffected. The change in the shafts of the long bones was a very definite one. There was a subperiosteal deposition of bone along the entire length of the shaft from one extremity to the other. The thickness of this new bone varied from a mere line to as much as one-quarter inch. It also varied in different parts of the same bone. In some places, as in one of the tibiae, the new bone was, or appeared to be, distinctly separate from the cortex. In other places it had become fused with and indistinguishable from the cortex; this probably represented a lesion of long standing. The lesion is very evident in the accompanying illustrations. The medulla and the cortex of the shaft were entirely changed.

The bones of the pelvis showed changes only in the iliac bones immediately above the acetabula. The vertebrae showed no apparent alteration in structure.

The patient's chest was examined by Dr. J. J. Wiener, who reported that there were positive signs in both lungs indicating chronic fibrous tuberculosis of the upper halves of both lungs, with a slight amount of scattered fresh infiltration in these areas. The bases of both lungs showed evidences of a widespread fresh tuberculous process. The heart was apparently normal. The sputum had shown tubercle bacilli on several occasions. Examination of the throat showed that there was a mild form of laryngeal tuberculosis.

Fig. 2.—Swelling of legs, ankles and feet; parrot-beak nails.

Review of Case.—The sequence of events seems to have been about as follows: The patient developed pulmonary tuberculosis about fifteen years ago. The process was a slow but progressive one with advancing changes in the pulmonary tissue and resultant interference with the return circulation, which has caused a chronic stasis in the extremities. After several years there appeared clubbing of the toes and fingers and later swelling of the hands, feet, legs and knees. It is interesting to note that the lesion is much more extensive in the lower than in the upper limbs. This is probably due to the fact that the upper limbs are less often in the pendent position than the lower, and hence the stasis is less persistent

Fig. 3.—Marked subperiosteal deposit of bone along shafts of metatarsal bones and the phalanges. In some places the new bone is fused with the cortex; in others it is still separated. The tarsal bones are not affected.

in the upper limbs than in the lower ones. The clinical and roentgen-ray findings made the diagnosis unquestionable. So far as the etiology is concerned, it has been assumed, and probably correctly, that the pathologic changes are due to two factors: (1) the chronic stasis or hyperemia due to mechanical interference with the return circulation by the changes in the pulmonary tissue, and (2) the toxemia resulting from the infection of the lungs. If these factors are not solely responsible for the changes in the limbs, it is at least reasonable to assume that they have an important etiologic relationship to them.

Second Examination.—We had an opportunity in this case to prove that the pendent position of the limbs and the consequent increased mechanical interference with the return circulation from them had an important influence on the swelling and sensitiveness of the limbs. Some time after the examination noted above, the patient suffered from severe pain in the chest and back which, together with an increased degree of weakness, kept him in bed for a period of two months. At the end of this time, Oct. 29, 1920, and while he was still in bed, I again examined him. On this date his chief complaint was pain in the back. He had no pain whatever in his limbs, and we were greatly surprised to find that except for the clubbing of the fingers and toes, the swelling of his limbs, which was very marked and evident at the last examination, had entirely disappeared. In addition, the tenderness of his limbs was much less marked and, in fact, had disappeared from many places. Thus, the left thigh, the right leg and both forearms were not tender at all. The hands and feet were only slightly tender. Thus, there can be no doubt that the fibrous tissue replacement of the lung tissue impeding the circulation of the blood through the lungs and the resultant stasis of blood in the extremities is at least one cause of the swelling of the limbs; For, when the circulation was improved, as it is during the recumbent position, the swelling was reduced.

With the recession of the swelling we were able to examine more carefully many of the affected bones. The internal surface of the right tibia, for instance, was definitely irregular, while the left tibia and the bones of both forearms were not irregular. The left scapula was found to be very irregular, and the spine of the scapula found to be thickened and irregular. The enlargement of the tip of the nose was markedly

increased, and there was now a mild degree of thickening of the malar regions. The spine presented a rigid mild total curve to the right. The spinous processes of the dorsal region were very tender, while those of the cervical and lumbar vertebrae were not.

SUMMARY

1. This patient developed pathologic changes in the extremities as a result of a chronic fibrous pulmonary tuberculosis.

2. He has swelling of the distal extremities of all the limbs, most marked in the legs and feet. The swelling is due to three conditions: (*a*) hyperemia, (*b*) fibrous tissue thickening of the subcutaneous tissue, and (*c*) ossifying periostitis of the long bones.

3. He has (*a*) permanent globular enlargement or clubbing of the distal phalanges of the fingers and toes; (*b*) parrot-beak deformity of the nails of the toes and fingers; (*c*) subperiosteal deposit of bone along the shafts of the long bones of the extremities, and (*d*) thickening of the tip of the nose and to a less marked degree of the malar regions.

1 West Eighty-Fifth Street.

ADMINISTRATION OF CARBON DIOXID AFTER ANESTHESIA AND OPERATION

THE ACID-BASE REGULATORY MECHANISM *

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The administration of carbon dioxid after anesthesia has been urged on a number of occasions.[1] Its benefits have been considered both from the theoretical standpoint and from actual trial. From the theoretical standpoint, it might be remarked, before proceeding to a discussion, that considerably more factors than are ordinarily taken into account must be considered. From the actual practice of this procedure, it is claimed that recovery from the anesthetic is hastened by the augmentation of breathing, that it has a powerful stimulating effect on the circulation, particularly the venous return, and that it causes a rapid restoration of arterial pressure without subsequent relapse. It produces a decrease of postoperative nausea and thirst, and a possible restoration of intestinal tonus. The latter leads to a diminution or entire absence of gas pains.

These propositions, it is evident, are essentially matters of opinion. It is extremely difficult, if not impossible, definitely to compare differences in recovery time between anesthetized patients to whom carbon dioxid is given and those who are allowed to recover in the ordinary way. Possibly a statistical treatment of the results in a large number of carefully selected patients and controls would decide. The same thing is true of nausea, vomiting and gas pains. The benefits of this treatment are stated confidently, however, and it was decided to try the method in this hospital.

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1. Henderson, Yandell; Haggard, H. W., and Coburn, R. C.: The Therapeutic Use of Carbon Dioxid After Anesthesia and Operation, J. A. M. A. 74:783 (March 20) 1920. Reference to other papers will be found in this article.

METHOD OF ADMINISTRATION OF CARBON DIOXID

The apparatus and technic used were the same as that described by Henderson, Haggard and Coburn.[1] The gas was obtained from a tank, and led through a reducing valve to a mask similar to those used on a nitrous oxid apparatus. The patient breathed in and out of a tube in the mask, 2.5 cm. in diameter. A small glass tube, passed through another opening, led the carbon dioxid into the interior of the mask (Fig. 1). During inspiration the gas was mixed with air entering the large opening. During expiration it wasted with the expired air into the surrounding atmosphere.

No account can be kept by this method of the exact quantity of carbon dioxid inspired, but a short experience enables the operator to judge, from the color and breathing, how firmly the mask should be pressed over the patient's mouth and nose. It is necessary, in order to secure effects, that the concentration of carbon dioxid in the alveolar air be kept higher than normal. From 6 to 8 per cent. of the gas is recommended for inhalation. In actual operation, too much gas produces cyanosis; too little, no effect. By carefully allowing the patient's rate and depth of respiration to maintain a maximum, and at the same time observing that the color is good, it is easy to regulate the practical dose.

All the patients on whom the procedure was tried were returned from the operating room in good condition, with good color, warm skin, and a respiratory rate fairly regular, of from 30 to 35 a minute. The ether was administered by the drop method. Carbon dioxid was given for one-half hour, and the interval between discontinuation of the anesthetic in the operating room and the start of the carbon dioxid varied from ten to twenty minutes. The first effect was observed very quickly—that of increased rate and depth of respiration. The color became rosier; the pulse rate was generally increased, but the peripheral blood pressure as measured by a Tycos instrument, showed no constant change. The administration was interrupted in many cases by efforts on the part of the patient to vomit, and toward the end of the half hour, by tossing of the head, and purposeful movements of the upper extremities directed toward pulling away the mask. Several patients who had received only a small quantity of ether recovered partial consciousness and announced this fact by asking for air, even though their color was good

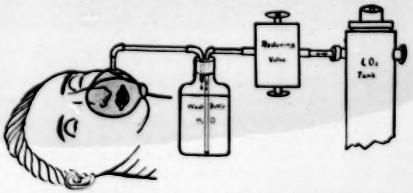

Fig. 1.—Apparatus for administering carbon dioxid.

and their breathing had been no more violent than others. Graphic records of the respiratory excursions are shown in Figures 2 and 3. They were obtained by a spring stethograph connected by air pressure to a tambour, the movements of which were recorded on a kymograph (Fig. 4).

COMMENT

The further history of these patients with respect to nausea, vomiting and gas pains was carefully kept. On these points, it is necessary that an opinion be given. This represents our judgment and the opinions of the deaconesses in charge of the wards. The latter is valuable, in that it represents the experience of many years, in the handling of operative patients in active wards. In our combined opinion, therefore, the administration of carbon dioxid did not materially hasten the recovery from the anesthetic, doing very little toward preventing vomiting and gas pains. We are convinced

that nothing short of mathematical methods will discover the differences, if any exist. It is obvious that its benefits in these directions are not clear.

From the theoretical standpoint, there is great interest in the discussion of this procedure. Carbon dioxid should be considered not merely as a waste product to be eliminated, but as a substance having properties of definite physiologic importance. There are two distinct opinions in reference to the effect of carbonic acid on the respiratory center. The one states that the normal stimulant of the respiratory center is the hydrogen-ion concentration of the blood; the other, that this factor plus a specific influence possessed by carbon dioxid is the respiratory hormone.[2]

In other words, carbonic acid is regarded by some as a mere acid, but a very convenient one, on account, for example, of its ease of excretion. By others it is regarded as an acid, with an additional stimulatory property.[2] Some of the following arguments in reference to the administration of carbon dioxid after anesthesia require that these points of view be remembered. In addition, before proceeding further, it is necessary to recall a few facts relative to the acid-base regulatory mechanism of the body. The hydrogen-ion concentration of the blood is kept, in health, at a remarkably constant figure. The acids yielding this constant hydrogen-ion concentration are of two varieties: volatile, namely, carbon dioxid, and fixed. They are derived from metabolic activities. The carbonic acid is excreted through the lungs, the fixed acid radicals mostly through the kidneys, and at such rates that the balance of the acid and alkali is always kept constant. If, for some metabolic reason, an excess of acid is produced, there is less room for carbonic acid, which can be quickly ventilated off and kept at the compensated level by increased respiratory activity. Analyses of the blood will show a diminished amount of carbon dioxid. If, on the other hand, a lower level of blood carbonic acid is brought about by overventilation, the blood becomes more alkaline, and under these circumstances it would be reasonable to administer an acid like carbon dioxid. But experiments of Macleod and Knapp[3] indicate that there is a compensatory mechanism for increased alkalinity. They found that there is an increase of lactic acid in the blood in experimental alkalosis. There therefore seems to be a mechanism which adds acid to the blood when this fluid becomes too alkaline.

The condition of diminished carbon dioxid, not due to the forcing out of this acid by another stronger one, has been termed "acapnia." The effects of this condition, among others, are a depression of the respiratory center, and a lowering of the hemoglobin dissociation curve. That is to say, less oxygen is liberated from a given volume of blood. The latter effect is very remarkable in its delicacy; a measurable change can be detected by a change in concentration of free carbonic acid of one part in one hundred million.[4] The depression of the respiratory center is very small in alkalosis, contrary to the stimulating effects of even small amounts of acid. This is brought out graphically in the carbon dioxid diagram of Haggard and Henderson.[5] Acids, including carbonic acid, have the power of increasing the "availability" of oxygen in oxyhemoglobin. There is no specific action manifested by carbon dioxid in this respect, however.[6] It may be argued that with less oxygen available, there can be less carbon dioxid produced, and consequently, a vicious circle may be established. The possibility, however, must never be overlooked that in conditions in which free oxidation is hindered, partial oxidation products, acid in nature, may be produced. There is abundant evidence that there is interference with oxidation in anesthesia.[7] Indeed, one of the well known theories as to the way in which an anesthetic produces anesthesia hinges on depression of oxidation.[8] The other theory refers it to a diminution of the permeability of cell membranes, which may also lead to incomplete oxidation.[9]

Fig. 2.—Increased respiratory activity.

To return to the question of the specific activities of carbon dioxid, the proposition is immediately presented: If the total acids of the blood are the respiratory stimulant and the factor which makes oxygen available from oxyhemoglobin, why attach such importance to

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8. Verworn, M.: Narcosis, Bull. Johns Hopkins Hosp. **23**: 97, 1912.

9. Lillie, R. S.: The Theory of Anesthesia, Biol. Bull. **30**: 311, 1916.

carbon dioxid as a mere acid? Since there is, however, still debate on whether carbon dioxid is more than an acid to the respiratory center, there is room for argument on the other side. The carbon dioxid diagram of Haggard and Henderson [5] is a most ingenious treatment of the subject. They reach the conclusion that the hydrogen-ion concentration of the blood is the important factor.

It remains to apply these arguments to anesthesia. The one definite fact acceptable to all observers is that the carbon dioxid carrying power of the blood is reduced by this procedure. It is the nature and the cause and the significance that are in doubt. Henderson says that the reduction is due to overventilation: too much carbon dioxid is removed by the increased respiratory rate and depth during anesthesia. Our standpoint is that the reduction is due to the entrance into the blood of other stronger acids, which turn out the carbon dioxid. Henderson says that the blood is more alkaline; we say that the hydrogen-ion concentration remains the same in all but a few, in whom, if anything, it tends to rise. Shall we give carbon dioxid or not? If the carbon dioxid is blown off, the organism should compensate in a manner similar to that indicated in the experiments of Macleod and Knapp. If carbon dioxid owes its properties only to its acid nature, it should make no difference to the respiratory center whether the acid ions are offered to it from carbonic acid or any other acid.

In 1918, work indicated that acids of at least one kind, namely, the acetone-diacetic acid group, are increased in the blood.[10] The technic by which these results were obtained has been justly criticized by Short,[11] who found, however, that these acids were increased, though later in the recovery time. He has also investigated the time interval, in two instances, of the well known ketone excretion in the urine. Neither blood nor urine increases corresponded to the maximum fall in the carbon dioxid of the plasma. The decreased permeability of cell membranes is to be considered a factor in this connection. The time element seems very important, but remembering that oxidation is hindered, and that one series of acids is increased, though later, it seems reasonable that other acids resulting from partial oxidation are also increased. Knowledge of the sum total of these, with their times, is necessary to close the subject.

An examination of experiments reported by Haggard and Henderson [12] shows that in an animal which has received an intravenous injection of hydrochloric acid in such amount that it would probably recover if left alone, the administration of carbon dioxid overstretches the compensatory power and the animal dies. It seems most logical that in anesthesia the diminished carbon dioxid follows the formation of incompletely oxidized substances, acid in nature, and, therefore, the administration of another acid, namely, carbon dioxid, is contraindicated. Alkali should be given.

The diminution of the carbon dioxid carrying capacity of the plasma as a result of anesthesia and operation varies from 5 to 15 c.c. or more. In the majority of cases, this does not reduce the carbon dioxid to below the generally accepted danger point, namely, 50 c.c. per hundred c.c. of plasma. In about 15 to 20 per cent. it will fall below this figure. There are a number of conditions that will predispose to this. First, it may be emphasized that those patients who show lower levels of carbon dioxid before operation will show a greater diminution after operation. Impaired kidney function, duration of anesthesia, preoperative preparation, i. e., starvation, partial or complete, for spreading peritonitis, hemorrhage, the possibility of postoperative shock, are all factors tending to reduce carbon dioxid more than usual. The administration of an alkali is then indicated to supply base, both for neutralization of excess acids, and to carry the ordinary carbon dioxid produced in the tissues. For this purpose, sodium bicarbonate answers the requirements. It might be remarked that, in addition to its alkaline properties, it has carbon dioxid in its molecule. Administration of this substance definitely increases the carbon dioxid level of the blood.

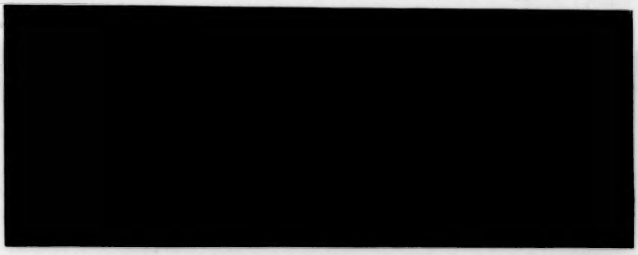

Fig. 3.—Increased respiratory activity.

TABLE 1.—RESULT OF ADMINISTERING CARBON DIOXID

Blood Pressure			Plasma CO_2			
CO_2 Begun	15 Min.	CO_2 Ended	Before	When CO_2 Stopped	At End of Half Hour	Gas Pains
130	130	130	51.0	48.0	Did not answer to spoken word; marked vomiting at 23 min.	+
120	110	120	50.3	53.4	No vomiting; moving at 20 min.	0
110	100	100	48.6	48.6	No vomiting; moving at 20 min.	+
110	110	105	47.4	44.7	Attempted to vomit in 18 min...	++
130	120	124	56.0	50.4	Regaining consciousness in 12 min.; asked for air in 30 min.	+
100	96	94	50.4	46.6	Restless and vomiting in 14 min.; noisy at 30 min.	0
105	108	108	45.7	45.7	Vomiting in 10 min.; noisy at 30 min.	0
105	105	105	43.1	44.1	No vomiting; moved at 30 min.	+

Dogs

Ether Time	Plasma CO_2 Before	When CO_2 Stopped	At End of Half Hour
32	37.6	36.5	Dog under anesthetic; howling and moving in 14 min.; walked in one half hour
30	39.0	35.3	Struggling in 18 min.
22	37.3	35.3	CO_2 stopped and started 3 times to adjust kymograph; biting at 13 min.
43	35.6	38.4	Reacted to stimuli in 5 min.; completely out in 30 min.
64	39.3	32.8	Anesthesia light throughout; howling in 8 min.

Our findings after the administration of carbon dioxid are shown in Table 1. It did not uniformly increase this substance in the plasma. In fact, the plasma fell

10. Reimann, S. P., and Bloom, G. H.: The Decreased Plasma Bicarbonate During Anesthesia and Its Cause, J. Biol. Chem. **36**: 211 (Oct.) 1918.

11. Short, J. J.: The Formation of Acetone Bodies Following Ether Anesthesia and Their Relation to the Plasma Bicarbonate, J. Biol. Chem. **41**: 503 (April) 1920.

12. Haggard and Henderson (Footnote 5, Experiment 14).

in more instances than it rose. Controls are shown in Table 1. Their plasma all decreased in carbon dioxid. Blood was collected just before the administration of the gas was begun, and just before it was stopped. The same increase of rate and depth of respiration was observed in animals, but no particular decrease in their recovery time. In the patients, the blood pressure in the radial artery was variedly increased, diminished or stationary. The question, however, is not blood pressure so much as increased blood volume returning to the right heart. It is probable that the vigorous respiratory effort during the inhalation of carbon dioxid brings this about by its pumping action. The color of all the patients became perceptibly rosier.

TABLE 2.—CONTROLS: NO CARBON DIOXID ADMINISTERED

Patients				Dogs	
Blood CO_2		Blood CO_2		Blood CO_2	
Before	After	Before	After	Before	After
56.0	52.3	56.0	56.0	49.0	48.0
54.1	52.3	48.3	44.2	39.2	31.2
51.4	48.6	51.2	48.6	46.1	43.2
53.2	51.4	49.1	46.3		

To return to the administration of sodium bicarbonate: It is a simple matter to determine whether this is indicated. If, before operation, the plasma of a patient shows a carbon dioxid carrying capacity of 58 c.c. or less, it should be given. From the preceding discussion, it is clear that an overdose is to be avoided. If, on the other hand, too little is given, it will not accomplish its purpose. Through the use of the formula devised by Palmer and Van Slyke,[13] accuracy in the dosage can be easily obtained. It may be thus employed: An estimation of the plasma carbon dioxid is made before operation, and if it is desired to increase this, alkali may be administered an

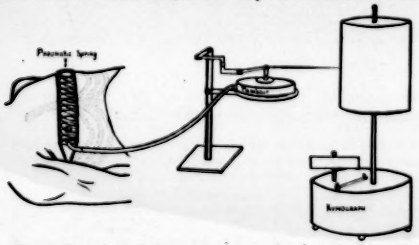

Fig. 4.—Method of obtaining graphic records of respiratory excursions.

hour before operation. The dose is calculated from the formula $G = \frac{B\,W}{38}$, in which G is the dose in grams of bicarbonate to be given; B, the desired increase in plasma carbon dioxid, and W the patient's weight in kilograms. Given by mouth when good gastric emptying exists, the maximum height of blood carbon dioxid will be reached in about one and a half hours to two hours after administration. It will gradually fall and reach somewhere near the previous level in another similar time. Intravenously, the maximum is reached just after the injection ceases, and its effects decrease in the form of an exponential curve to the neighborhood of the starting point in about two hours. The duration as well as the maximum effect will vary with a number of factors, but can be gaged quite practically. The dose may be divided over a period of several hours, with a corresponding decrease in the maximum at any time, but a lengthening of the effective smaller increase. Administration by rectum also produces the increase of blood carbon dioxid, but, in our hands, short of the calculated one. Finally, if any doubt exists, another blood determination will answer the question.[14]

13. Palmer, W. W., and Van Slyke, D. D.: Relationship Between Alkali Retention and Alkali Reserve in Normal Pathological Individuals, J. Biol. Chem. **32**: 499 (Dec.) 1917.

SUMMARY AND CONCLUSIONS

This review concerns the administration of carbon dioxid after anesthesia. In view of the experiments and results reported, and the consideration of its therapeutic and theoretical bases contrasted with the administration of an alkali, the use of sodium bicarbonate in a practical way is indicated.

Sodium bicarbonate should be given to selected surgical patients. The use of carbon dioxid by inhalation is contraindicated.

NOTE.—Since this article was written, Carter[15] has published results which strengthen our arguments very materially, and give a decided blow to the practice of giving carbon dioxid after anesthesia.

14. Experiments on which these statements are based were reported at the meeting of the American Association of Pathologists and Bacteriologists, New York, April, 1920. The details are now in course of preparation for publication.

15. Carter, W. S.: The Effect of Ether Anesthesia on the Alkali Reserve, Arch. Int. Med. **26**: 319 (Sept.) 1920.

THE ETIOLOGY OF COMMON WARTS

THEIR PRODUCTION IN THE SECOND GENERATION *

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Assuming that ordinary warts were of an infectious origin, and proceeding on the theory that the particular infectious agent was in the nature of a filtrable virus, Wile and Kingery,[1] almost two years ago, undertook the proof of these speculations. Their method of procedure in the first series of experiments was comparatively simple, and exactly like that employed in similar studies on the causative agent of molluscum contagiosum. Ordinary lesions of verruca vulgaris were removed by curettement and ground up in a mortar with a small amount of saline. The mash thus obtained was passed through the finest Berkefeld filter under negative pressure. The sterility of the resultant filtrate was tested and proved by the uniform negative results obtained when portions of it were added to various culture mediums. The remainder of the filtrate was then injected intracutaneously into several human subjects. Other than the requisite that they present no verrucous lesions, the subjects of these experiments were chosen indiscriminately. Following an incubation period varying from four to eight weeks, extremely small papular lesions made their appearance at the sites of the injections of the sterile filtrate. Daily observations of the developing lesions revealed the fact that they were subject to several clinical variations. Some of the lesions, after they had developed to a certain

* This article is abbreviated in THE JOURNAL by the omission of photomicrographs. The complete article will appear in the author's reprints.

1. Wile, U. J., and Kingery, L. B.: The Etiology of Common Warts: Preliminary Report of an Experimental Study, J. A. M. A. **73**: 970 (Sept. 27) 1919.

size, remained stationary for a time, and then underwent spontaneous involution. Some of the lesions gradually increased in size until they had attained the dimensions of a split pea, at which time they were removed for histologic study. The most striking feature in the development of these experimental lesions, however, was the marked rapidity of growth exhibited

Fig. 1.—Small, flat warts of the first generation developing at sites of inoculation.

by certain of the lesions located at the sites of frequent trauma. In other words, the hyperkeratoses, developing at the sites of injections of the sterile filtrate, were virtually identical, both clinically and pathologically, with our present conception of ordinary warts (Figs. 1 and 2).

Encouraged by these results, which seem extremely suggestive of a filtrable causative agent in the production of verruca vulgaris, a second series of experiments was immediately undertaken with the view of producing these lesions in the second generation. Accordingly, an exactly similar technic was employed, using the lesions above described (Fig. 1) as the source of the material. The sterility of the filtrate was again proved, the injections were made as before, and the subjects of the experiments were kept under daily observation.

After an incubation period, this time of approximately six months, extremely minute papular lesions gradually made their appearance at the exact sites of the injections of the sterile filtrate. One or two of the developing lesions after a time disappeared spontaneously, yet the majority gradually increased in size until they approximated that of a split pea. At that time they presented a marked hyperkeratosis, a definitely verrucous surface, and were in every way clinically indistinguishable from ordinary verruca vulgaris (Fig. 3). Histologic examination at this time revealed a picture virtually identical with Unna's description of the changes occurring in these lesions. They exhibited varying degrees of hyperkeratosis, depending on the size of the growth. The rete malpighii presented a marked acanthosis with the usual branching and extension downward of the rete pegs. Here and there in this layer were present the peculiarly vacuolated cells, which Unna believed significant of beginning retrogression of the lesions. Finally, there was the mild reaction in the cutis, and vascularity of the interpapillary bodies. In other words, these localized hyperkeratoses carried into the second generation, as described above, followed a clinical course, and presented a histologic picture which corresponded without exception to our present conception of ordinary warts.

COMMENT

That localized epithelial changes, notably hyperkeratinization, do result from bacterial implantation or from the products of bacteria so implanted, is a fact of which we have ample clinical proof. As examples of this may be mentioned the localized hyperkeratoses occurring in tuberculosis verrucosa cutis, as a result of the tubercle bacillus; in keratosis blennorrhagica due to the gonococcus, and in the acuminate condyloma so frequently associated with infective excretions.

The similarity between the pathologic processes represented by the foregoing, and that occurring in ordinary verruca vulgaris, is at least suggestive of an analogous causative mechanism. Such a view is further substantiated by the numerous evidences of contagion exhibited by ordinary warts in their tendency to occur in crops, their transmission to contiguous surfaces by contact, and the frequent appearance of multiple "daughter warts" when a preexisting single lesion is traumatized. Finally, the infectious theory of the origin of these lesions has been advanced to a great extent by the laboratory experiments of Variot,[2] Jadassohn [3] and others, who have demonstrated the contagiousness of the lesions in various ways.

Opposing this view, however, is that which would explain their occurrence as the result of foreign body implantation, because bits of glass, steel, etc., are not infrequently encountered in verrucose lesions. That

Fig. 3.—Second generation warts developing at sites of inoculation of sterile filtrate obtained from lesions shown in Figure 1.

localized hyperkeratoses of a warty nature undoubtedly occur following such implantation, however, is in no way conclusive proof of the etiologic moment of the foreign body itself. Such a finding might lend itself equally well to the explanation that the trauma incident to the entrance of the foreign body served as a portal

2. Variot: J. de clin. et de thérap. inf. 94: 892, 1893.
3. Jadassohn: Arch. f. Dermat. u. Syph. 1896.

of entrance for the infecting organism. Finally, it would rather seem, from the clinical and experimental evidences of contagion, and the experiments described herein, that in the production of ordinary warts there must be an infectious agent that is specific, that does not thrive on ordinary cultural mediums, and that is at the same time capable of passing through the finest filtering apparatus obtainable.

CONCLUSIONS

1. The demonstration of a filtrable virus for warts by Wile and Kingery is further substantiated by their production in the second generation.

2. The period of incubation from the time of inoculation to the development of well defined lesions is apparently much longer than pertains to other filtrable viruses.

ZINC CHLORID POISONING

REPORT OF OUTBREAK AMONG WORKERS IN A WOOD PRESERVING INDUSTRY

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AND
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The preservation of wood is a relatively new industry. The trade processes involved are undergoing frequent alterations, especially with reference to the chemicals employed. As a result, diseases incident to occupation in this industry are frequent. The subjoined report is a record of an outbreak of dermatoses arising in a wood preserving plant.

ESSENTIALS OF THE TRADE PROCESSES INVOLVED

The principal woods treated are railway ties of hard and soft wood. The principal chemicals used are: (1) tars and creosotes because of their ability to render the wood weather-proof and water-proof; (2) zinc chlorid, because of its action as a fungicide and a fire repellant. To insure penetration, wood treatment is carried out in air tight cylinders under pressure. This process, which is employed in this plant, is but one of a highly diversified series of processes, most of which are protected by patents. After cylinder treatment, treated ties are handled by hand in loading and stacking. Dermatoses were noted among all employees handling these ties.

Fig. 1.—Typical lesion from zinc chlorid burn.

NATURE OF LESIONS

Seventeen patients were examined. Early it was evident that four types of skin lesion were being presented. The first three are well known, as incident to work in tar.

(*a*) *Tar Dermatitis.*—Dermatitis venenata, attributable in part to preparations used by employees in "cleaning up," such as benzene, light and heavy oils from coal tar distillation, and in part attributable to coal tar distillation products in the tar employed, was observed in only two cases.

(*b*) *Tar Acne.*—This condition was noted in varying degrees among all the employees examined. It is a common disease among all tar workers and is due to the accumulation of tar in hair follicles, especially those of the forearms.

(*c*) *Tar Cancer.*—In two cases, lesions were exhibited suggestive of tar workers' or "chimney sweep" cancer, which has been carefully described by Schamberg.[1] One of these lesions was situated on the scrotum,

Fig. 2.—Typical zinc chlorid burn on second finger, of three weeks duration. Dorsum of hand presents trivial zinc chlorid burns at sites of previous tar acne.

and the other on the forearm. The quick disappearance of these lesions under treatment makes one hesitate before making a diagnosis of tar cancer.

(*d*) *Zinc Chlorid Burns.*—In addition to the foregoing conditions, all patients presented multiple lesions of the fingers, hands, forearms and rarely of the legs and thighs. All patients gave a history of slight injury, such as abrasion, splinters, burns or crevices from chapping. The typical lesion was a small opening in the skin usually corresponding to the size and shape of the antecedent injury. The surrounding skin appeared normal, but on careful examination it was found to be readily removable. When the initial break in the skin was approximately 4 mm. in diameter, the subsequent impaired skin area was about 12 mm. in diameter. This proportion obtained roughly for all sizes of lesions. On removal of the impaired skin, the underlying tissues were found to be white and bloodless. In the center there was a cylinder of escharotic tissue, the depth of which depended on the duration of the lesion. There was no evidence of infection, and little or no swelling was noted. At times, some of these lesions were exquisitely painful, and others were wholly and continuously painless.

1. Schamberg, J. F.: Cancer in Tar Workers, J. Cutan. Dis. **28**: 644, 1910.

CAUSES OF LESIONS

In seeking to discover the cause of these lesions, it was determined that the strength of the zinc chlorid solution in treatment fluids was so dilute as to be incapable of producing skin lesions. The pertinent observation was, however, made that after the ties were removed from the cylinder they were permitted to remain in the open air, sometimes for several hours. During this period evaporation of the zinc chlorid solution occurred so that the ties when handled in loading were sometimes smeared with treating fluid in which the zinc chlorid approximated saturation. From this and from laboratory evidences, a diagnosis of zinc chlorid burn was made.

Additional factors in the causation of these lesions are: (1) Antecedent injury to the skin appears to be necessary. (2) After initiation of the lesion, repeated exposure to the zinc chlorid solution is a factor in the severity and progress of the lesion. (3) The irritation from the tar fraction of the treating solution is a factor in the severity and progress of the zinc chlorid burn.

TREATMENT

It was commonly recognized among workers that no "sore" would get well so long as the "core" remained in the wound. In all cases, this escharotic tissue was removed and the craters filled with sodium bicarbonate alone or in combination with petrolatum. This treatment was carried out on the assumption that thereby zinc carbonate would be formed, which is believed to be without harmful properties. Whatever the precise action, this treatment was effective, especially when it was possible temporarily to take the workers off their jobs.

PREVENTION

At no time were the constitutional effects of zinc detected. This is reasonable, inasmuch as no zinc fumes or dusts were involved in the trade processes. Prevention involved eliminating contact between the bodies of the workers and the treating solution. All leather garments were found to be unpractical because of the shrinking action of zinc chlorid on this material. Rubber gloves and aprons proved to be unpractical in that they were not sufficiently durable to withstand the hard wear. Also rubber gloves are cold and expensive. Several types of so-called acid-proof and water-proof canvas garments were tried out. The overall was found to be impervious to water and acid zinc chlorid solution, and was not injured by the solution. The corresponding type of gauntlets regularly proved to be unsuitable because they were subjected to a greater and more constant contact with the treating fluid. Protection for the hands was obtained through the use of flexible "linoleated" canvas gauntlets. Such gauntlets were impervious to all fractions of the treating fluid, were comfortable, durable, and inexpensive. The use of these protecting garments, together with the prompt treatment of all trivial injuries to the hands and forearms, has caused zinc chlorid burns to disappear from the plant.

214 West Seventh Street.

Fig. 1.—Appearance of patient, aged 7 months, with ovarian cyst.

TUMORS OF THE OVARY IN CHILDREN

REPORT OF A LARGE OVARIAN CYST IN AN INFANT SEVEN MONTHS OF AGE *

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The report of a single case of ovarian cyst in an infant is presented partly to call attention to an unusual condition, but especially for the purpose of making a plea for earlier operative interference in the surgical diseases of infants and children.

The literature contains reports of a large number of tumors of the ovary in children, including simple cysts, dermoids, sarcomas and carcinomas; but only two instances have been previously recorded in which the condition was operated on in the first year of life. That the two cases hitherto reported in young infants as well as the author's case were simple cysts and were first noted at birth or shortly afterward suggests that this type of growth may reach considerable size in the fetus, and that the earlier in life these tumors make their appearance, the better the chances are that the growth is benign rather than malignant.

In a summary of the sixty cases of ovarian tumors occurring in children 10 years of age and younger reported up to 1904, Weil [1] states that twenty-one, or 35 per cent., were dermoids; nineteen, or 31.6 per cent., cysts, single or multilocular; fifteen, or 25 per cent., sarcomas, and the remainder carcinomas or papillomas. Twenty-six cases in children under the age of 10 have been recorded since Weil's report was made. Two were simple cysts, eight dermoids, and sixteen malignant—either carcinoma or sarcoma. The youngest patient in whom malignancy is recorded was 1 year and 8 months of age and dermoid, 2 years. In studying the statistics of the sixty cases reported prior to 1904, it will be seen that more than 66 per cent. are classed as benign and 32 per cent. as malignant, whereas of the twenty-six cases recorded since that date, 62 per cent. are classed as malignant and 38 per cent. benign. The probable explanation for the apparent discrepancy in these findings is found in the fact that a more careful and thorough microscopic examination was made in the later series.

In 1906, Donhauser [2] of the Bender Laboratory called attention to the importance of making a careful histologic study of all so-called simple cysts of the ovary with the view of deciding the question of malignancy. A comparison of the pathologic findings in the early and late series of cases quoted above proves the value of this author's suggestion. Furthermore, it is clearly shown that any tumor of the ovary, cystic or solid, should be removed as soon as possible after its

* Read before the Southern Surgical Association, Hot Springs, Va., Dec. 16, 1920.

1. Weil, H. I.: Bull. Johns Hopkins Hosp. **16**: 102, 1905.
2. Donhauser, J. L.: Albany M. Ann. **27**: 20, 1906.

discovery, as there is nothing in the early clinical history of most of the cases to indicate whether the condition is benign or malignant. As naturally expected, a swelling in the lower abdomen is as a rule the first sign or symptom to call attention to the fact that the infant is suffering from an ovarian tumor. This may be observed at birth or soon thereafter. However, in many of the recorded cases, acute abdominal pain due to twisting of the pedicle was the first symptom noted. The history of a number of cases states that a previously healthy child begins to run down and show constitutional symptoms before the presence of a growth is made out. This generally suggests malignancy. Other symptoms are those due to the presence of the mass in the abdomen, and vary according to the size and consistency of the tumor. Owing to the fact that the uterus and its appendages are practically abdominal organs in early infancy, pressure symptoms on the bladder and rectum are seldom encountered.

In the case of solid growths, especially if accompanied by adhesions, there may be disturbance of the bowels, pressure on the ureters or bladder, and ascites. The growth may reach such proportions as to interfere mechanically with respiration and the general comfort

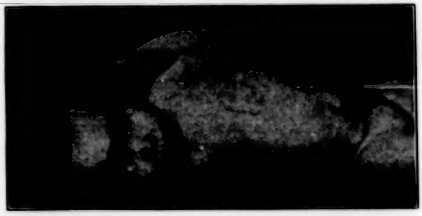

Fig. 2.—Appearance of patient, aged 10 months, after operation.

of the patient. On the other hand, it is surprising how little the simple cystic tumors may interfere with nutrition. The fact that the infant takes its feedings well and seems to thrive in spite of the presence of a large cystic tumor greatly favors the absence of malignancy. In older children, the early appearance of menstruation or an irregularity in it has been noted. Of the complications of ovarian tumors, torsion of the pedicle is by far the most common. This accident is most likely to occur in the growths of moderate size, and is recognized by a sudden onset of acute abdominal pain which may be accompanied with rapid increase in the size of the tumor. Suppuration due to infection through the blood stream or lymphatics or as a result of aspiration has been observed. Rupture of the cystic growths has also been reported.

The diagnosis of ovarian tumors in infants offers several difficulties. In the first place, the condition is so unusual that the examiner may not give due consideration to the possibility of the existence of such a disease. These growths are abdominal rather than pelvic, and are usually attached by a long pedicle. For this reason they are easily mistaken for kidney tumors, mesenteric cysts, etc. If, however, the mass occupies the midhypogastric region, and rectal examination suggests the presence of a pedicle giving a cordlike feel to the finger, the diagnosis may be easily made. In the case of large cystic tumors occupying almost the entire abdominal cavity, a general consideration of the patient will be of great value. The appetite may be good, bowels and kidneys function normally, and the infant seem to be suffering merely from the mechanical presence of the large amount of encysted fluid. Roentgen-ray examination by means of a barium meal or enema is of great diagnostic value in determining the relation of the intestine to the growth. The question of an exact anteoperative diagnosis is, however, of little consequence as compared to the importance of early removal, and for this reason valuable time should not be wasted before resorting to an exploratory incision.

It is superfluous to state that the treatment of ovarian tumors or, for that matter, any abdominal tumor in an infant, is surgical. The case may be brought too late to permit a cure either on account of the poor condition of the child or the histologic structure of the growth; but this does not alter the fact that surgery at the proper time offers the only hope of cure in such cases. The feeling that young infants do not stand major surgical operations well is still far too prevalent. Such is not the case. If these patients are given an equal chance with an adult, that is, early and correct diagnosis, and are properly safeguarded from undue exposure and loss of blood during operation, they will make an even better and more rapid postoperative convalescence than older individuals. No thoughtful, properly trained physician or surgeon in this day would think of prescribing a cathartic for an adult giving symptoms of an acute abdominal condition before a careful study is made of the case. The same thing cannot always be said of the treatment accorded infants, partly because of the inability to define their symptoms, but largely because the same degree of care is not exercised in making the diagnosis, especially at the very beginning of the disease. When the patient comes to operation and the result is not satisfactory the explanation is that infants do not stand operations well. In the case here reported, a swelling of the abdomen was noted at birth which steadily increased in size, but it was not until the seventh month that a surgeon was consulted.

REPORT OF CASE

History.—G. P., born Feb. 13, 1920, admitted to the Babies' Hospital, September 24, had had an enlargement of the abdomen since birth. She was a full term infant, with normal delivery, weighing 9½ pounds. During the first three months the baby suffered from colic and occasional loose stools with mucus. She took feedings well and did not vomit. The general condition continued good and the infant seemed well in every way except for the increasing enlargement of the abdomen. The abdominal distention was thought to be due to Hirschsprung's disease until roentgen-ray examination demonstrated a normal intestinal tract.

Examination.—On admission to the hospital, the patient was well developed and well nourished. She was bright, not fretful, and apparently comfortable in spite of the enormously distended abdomen. The chest measured 15 inches; the abdomen, 24 inches; length, 25 inches. The weight was 17 pounds. The abdomen was symmetrically enlarged. A definite fluid wave and fluctuation were easily made out. Dulness extended over the entire abdomen and into the flanks. On rectal examination a pedicle could be felt anteriorly and to the left. A diagnosis of ovarian cyst was made.

Operation and Result.—September 24, a lower right rectus incision was made. There was no free fluid in the peritoneal cavity. There was a large, moderately thick-walled cyst. A trocar was introduced and 2.5 liters of clear, straw-colored fluid withdrawn. A pedicle, the size of the little finger, springing from the left cornu of the uterus was ligated with No.1 plain catgut. The right tube and ovary were normal. The abdomen was closed in the usual way. Convalescence was

uninterrupted. The patient was discharged from the hospital, Oct. 7, 1920, cured.

A pathologic examination by Dr. Martha Wollstein revealed a simple ovarian cyst. There was no evidence of malignancy. Dec. 3, 1920, the mother reported that the baby appeared normal in every way and was gaining rapidly in weight.

424 Park Avenue.

Clinical Notes, Suggestions, and New Instruments

TWO SUGGESTIONS IN ABDOMINAL OPERATIVE TECHNIC

PERITONEALIZATION BY SUSPENSORY LIGAMENT OF LIVER AFTER CHOLECYSTOSTOMY OR CHOLEDOCHOSTOMY; UTILIZATION OF ROUND LIGAMENT OF UTERUS WITH CREMASTER IN REPAIR OF FEMORAL HERNIA

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Associate Professor of Surgery, University of Pennsylvania Graduate School

These suggestions in abdominal operative technic are, as far as I am aware, original.

1. *Peritonealization by Suspensory Ligament.*—The sketch (Fig. 1), together with the inset, shows at a glance the method of sealing the site of drainage in choledochostomy. In this patient—a woman aged 47—the common bile duct was dilated to the size of a man's thumb, and contained six stones each the size of the thumb nail. These stones were removed through an incision in the common duct, and the gallbladder was then removed. A rubber drainage tube one-fourth inch in caliber was inserted into the common duct, which was closed up to the tube. It then occurred to me to bring the tube out through a hole made in the suspensory ligament just to the left of the round ligament. This was done, and the suspensory ligament was held in juxtaposition with the common bile duct by a catgut suture. Five days after operation, while the patient was being transferred to another floor, the tube slipped out of the bile duct. Thirteen days after operation, bile no longer escaped from the fistula.

Fig. 1.—Author's method of peritonealization by suspensory ligament of liver after choledochostomy (also for cholecystostomy). *A*, effectual sealing obtained by this method.

The anterior lamina of the gastrohepatic omentum does not lend itself to facile closure after having been divided for exposure of the bile ducts and cystic artery; furthermore, it is very thin near its right, free edge. The suspensory ligament, on the other hand, with its two layers of peritoneum sandwiching subserosa fat and with its free border reinforced by the strong round ligament, forms an ample and ideal sealing medium. Witness the closure of the large (one-quarter inch) ostium in this case is sixteen days. Furthermore, the suspensory ligament, by means of its anterior parietal attachment, when thus utilized protects the left upper abdomen from the spread of infection. Thus the bile duct fistula becomes closed not alone by proliferation of the mucosa epithelium, but also by peritonealization on the part of the suspensory ligament.

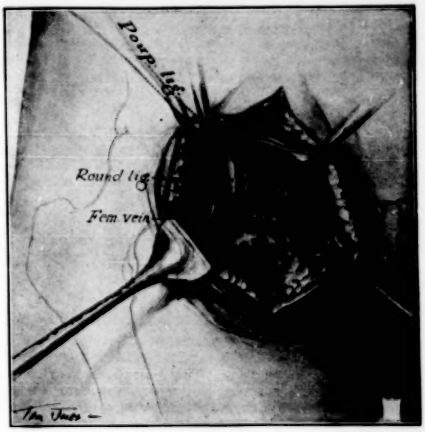

Fig. 2.—Author's method of repair of large femoral hernia when it is necessary to divide Poupart's ligament. Note suture of free border of round ligament of uterus with still-attached cremaster muscle and fascia to pectineus fascia.

I applied this method in a cholecystostomy performed the day this article was written. In this case the round ligament was sutured to the gallbladder to the right of the ostium, with the result that the suspensory ligament formed a perfect cap for the fundus of the gallbladder, in the center of which the ostium was made: this seems to be much better than contacting the fundus with the anterior parietal peritoneum, and should prevent adhesion formation. The method of jejunostomy as performed by Dr. C. H. Mayo, in which the great omentum is sandwiched between the bowel at the site of the ostium and the anterior parietal peritoneum, is based on the same principle. The rectus incision must fall to the right of the parietal attachment of the suspensory ligament.

2. *Utilization of Round Ligament with Cremaster in Repair of Femoral Hernia.*—The sketch (Fig. 2) shows how an incarcerated femoral hernia containing cecum and omentum in a woman, aged 60, was dealt with. In the right groin there was an "irreducible" swelling the size of two adult fists. Under local anesthesia the hernia was approached by the inguinal route of Ruggi, to which there was added a descending vertical incision through skin and fat to isolate the hernial sac. When the sac was opened, much turbid serum escaped. The incarcerated portion of the omentum was ligated, and the stump was pushed up into the peritoneal cavity. The wall of the cecum was so thick from edematous infiltration, however, that it was impossible to reduce it without preliminary division of Poupart's ligament. The cecum could now be readily reduced. But there remained a large wide-open passageway between the abdomen and the thigh. Closure of this passageway could not be effected by mere suture of the divided ends of Poupart's ligament. Poupart's ligament undivided is a different structure from what it is

when it is divided: in the former instance it is tense and strong; in the latter, flabby and weak. In casting about for a structure that would satisfactorily close this large passageway, I hit upon the round ligament, from which, fortunately, the cremaster muscle and fascia had not been separated. The femoral vein being retracted laterally, the free border of the round ligament was sutured to the underlying pectineus fascia, from the vein almost to the pubic bone, interrupted sutures of No. 2 chromic gut being used. Over this the divided ends of Poupart's ligament were sutured, and the superficial tissues were approximated. The patient was up and about at the end of two weeks, and the barrier was then holding very well. In this connection we cannot help calling to mind the importance attached by Dr. Halsted to the cremaster muscle and fascia in his method of inguinal herniorrhaphy.

241 South Thirteenth Street.

DISLOCATION OF THE SEMILUNAR BONE: REPORT OF CASE IN WHICH REDUCTION WAS SUCCESSFUL

WILLIAM W. GOLDEN, M.D., ELKINS, W. VA.

E. D., a man, aged 37, was thrown out of an automobile as it left the road and went down a bank while rounding a curve at a rapid speed. I saw the patient within a few hours after the accident occurred. He was suffering agonizing pain in the entire left upper extremity, with greatest intensity in the region of the left shoulder and at the wrist. An examination of the shoulder by roentgenogram and otherwise proved the absence of any injury there. The wrist was swollen and exquisitely tender, and presented a small swelling on its anterior aspect. A roentgenogram revealed a complete dislocation of the semilunar bone. The bone abandoned entirely its carpal associates and landed on the anterior aspect of the lower end of the radius. In doing that it made a revolution of about 225 degrees, its posterior end making nearly all of the excursion, with the anterior one acting as the fulcrum, as shown in Figure 1. The first attempt at reduction brought the bone nearly into normal position as far as its relation with the radius was concerned, but failed to reestablish its normal relation with the os magnum. To accomplish this a second attempt was necessary. Figure 2, from roentgenograms made about nine months after the accident, discloses the same condition as a roentgenogram taken immediately after reduction, namely, a virtually complete restoration of normal relations of the carpal bones to one another and to the radius. Immediately after reduction, the severe pain in the upper extremity was entirely relieved. Some soreness at the wrist persisted for a while, and for a longer time there persisted some numbness of the fingers supplied by the median nerve. It is evident that the bone in its false position did some damage to the median nerve by stretching it. The nerve symptoms gradually disappeared. The function of the wrist kept improving under heat and passive motion. At present, ten months after the injury, function is perfect. The size and contour of the wrist when viewed by itself seem perfectly normal, but when compared with the wrist of the opposite side a slight increase is noticeable. The patient was unable to tell just in what position his wrist was when the injury occurred.

Fig. 1.—Anteroposterior and lateral views of dislocated semilunar bone.

Fig. 2.—Condition nine months after the accident.

I report this case partly because of its rarity and because the usual procedure in such cases is to remove the bone.

PAPILLARY EPITHELIOMA OF BLADDER, METASTATIC IN KIDNEY *

F. HERBERT HAESSLER, M.D., WEST PHILADELPHIA, PA.

In THE JOURNAL, Oct. 30, 1920, P. E. McCown [1] reported a case of epithelioma of the kidney, and presented abstracts of forty-six previously published case reports. There seems to be little doubt that in the cases in this series, in which neoplasms were present in both kidney pelvis and urinary bladder, the primary location of the mass was in the kidney.

I think it worth while to report the following case in order to emphasize the fact that it is possible for similar tumors to occur in the kidney and bladder in which there is good reason for assuming that the bladder mass is the primary growth.

REPORT OF CASE

Clinical History.—The patient was a man, aged 77, mentally deranged. Though careful notes were made of all facts objectively observable, the available data when correlated with the necropsy findings are not of sufficient value to justify reporting them in detail. There was profuse hematuria on several occasions in the five days preceding death.

Necropsy.—The essential deviations from normal were: extradural hemorrhage, acute lobular pneumonitis, cirrhosis

* From the Pathological Laboratory of the Pennsylvania Hospital, Department for Mental and Nervous Diseases.

1. McCown, P. E.: Papillomatous Epithelioma of the Kidney Pelvis, J. A. M. A. 75: 1191 (Oct. 30) 1920.

of liver, arteriosclerotic nephrosis, neoplasm of kidney, and papilloma of urinary bladder.

When the left kidney was removed, a cyst was incised and about 150 c.c. of very turbid light red fluid was freed. The kidney was somewhat smaller than the right, weighed 130 gm., and consisted of a small amount of kidney tissue surrounding four cystic cavities from 3 to 5 cm. in diameter. Embedded in the parenchyma were several masses of soft, white, fleshy tissue. The kidney pelvis and ureter were somewhat dilated, but the linings were smooth and glistening.

The parenchyma of the left kidney was destroyed by two factors: (1) a severe chronic inflammatory reaction with connective tissue replacement of the tubules and round cell infiltration, and (2) infiltration by a tumor. The tumor occupied the greater part of the kidney volume, extending from the pelvis toward the cortex. The structure of the tumor varied with the amount of accompanying stroma. Where this was profuse it had a glandular appearance and resembled a scirrhous carcinoma of the breast. In certain areas the tumor was more cellular and open, and there the cells were arranged about a central fine strand of fibroblasts, being placed radially in several irregular layers. In these regions the tumor was indistinguishable from the bladder tumor to be described. The cells were everywhere much the same, showed numerous mitotic figures, and had moderate sized oval and irregular nuclei whose staining varied from moderate to very deep. There was a small zone of protoplasm about the nucleus. The tumor would seem to be a metastasis by way of the lymphatics of the ureter from the bladder tumor.

The bladder tumor was a fairly typical, not very vascular papillary carcinoma of the bladder. The villi were closely packed, and had numerous irregularly layered cell strata. Mitotic figures were abundant and especially clear. The cells varied more as to size of nuclei and amount of protoplasm than did those of the kidney tumor, but certain areas were very similar. There was no particular invasion of the bladder wall.

The ureter between the two neoplasms was normal; hence the two growths were not causally connected by direct extension. It is improbable that a tumor cell carried in the urine would become attached to the bladder wall and begin to grow there. Metastasis through the lymphatics is a more probable explanation. Eisendrath and Schultz[2] have shown that lymphatics pass from the bladder to the kidney pelvis in the ureteral wall, and that it is a frequent route of infection of the renal pelvis. Therefore the assumption seems justified that in this case the neoplasm was primary in the bladder wall and not in the kidney.

BILATERAL FORWARD DISLOCATION OF THE FIFTH CERVICAL VERTEBRA WITH REDUCTION BY MANIPULATION

MITCHELL LANGWORTHY, M.D., SPOKANE, WASH.

Aug. 5, 1920, C. O., aged 28, a truck driver, was injured in an automobile accident. He was found pinned underneath an overturned truck with his head and neck bent forward. He was not unconscious when helped out, but became so for a few minutes while he was being moved. He thought that this had something to do with movement of his head, and instructed the helpers to keep his head straight and immovable while they were carrying him to the hospital. Examination there disclosed considerable interference with respiration, which was greatly improved by traction on the neck. The patient was in severe shock.

Four hours after injury, he had recovered sufficiently to answer questions, at which time I was called in consultation. Roentgenograms of the cervical spine had been taken, and the lateral view revealed a bilateral forward dislocation of the fifth cervical vertebra on the sixth, with a slight impaction of the body of the fifth. Anteroposterior views, although excellent stereoscopic plates, revealed nothing that would have been definite enough to permit a diagnosis without the lateral view. The symptoms present were priapism; numbness and tingling in the right hand and forearm and over the entire left lower limb, and frequent coughing with some fresh blood in the sputum. The knee jerks seemed normal. There was no motor paralysis and no gross eye findings. Respiration was still difficult.

Attempt at reduction by manipulation was suggested and agreed to. Five and a half hours after the injury the patient was anesthetized with ether. When well relaxed, he was slid upward on the table, so that I could hold his head in my hands, free of any other support. The method of Walton was followed, which attempts to slip the articular facet, first of

Fig. 1.—Bilateral forward dislocation of fifth cervical vertebra on the sixth, with slight impaction of the body of the fifth.

one side and then of the other side, back into position on the facets of the vertebra below. To reduce the right side, the neck was flexed to the left and then rotated to the right. This was accomplished by approximating the head to the left shoulder and then rotating the chin toward the right shoulder. The same movements were then carried out for reduction of the left side. As these were finished, a distinct chug was heard and felt in the neck. This was more like a dull bump than a snap or click. Immediately afterward, the movements of the neck were free in all directions. It was felt that reduction had been accomplished, and this was verified a little later

Fig. 2.—Appearance of vertebrae after reduction by manipulation.

by roentgenograms. He was put back to bed with the head, neck and shoulders supported by large, heavy sandbags.

The next day the priapism disappeared and the numbness and tingling began to decrease. On the fourth day the patient's condition was so much improved that, with a plaster cast, which supported the weight of the head on the shoulders and protected the neck, he was allowed to sit up. On the seventh day he was allowed to walk a little. The cough was much improved, and the numbness and tingling had almost disappeared. On the fourteenth day, he was discharged from the hospital, walking well, with no discomfort, although still somewhat weak. His strength improved rapidly, and at the end of the sixth week the plaster support was removed.

2. Eisendrath, D. N., and Schultz, O. T.: J. M. Res. 35:295 (Jan.) 1917.

Several examinations since, the last being ten weeks after the injury, have revealed no symptoms at all, except some soreness and stiffness in the region of the ligamentum nuchae and trapezius muscle at the base of the neck. This was probably due to the stretching and laceration of these structures which must have occurred at the time of the injury. This condition is improving. Movements of the neck are normal in extent, although still somewhat weak. In every other way, the patient is perfectly well.

Paulsen Building.

RESTORATION OF THE CHEEK AND TEMPORAL REGION BY PEDICLED AND SLIDING GRAFTS OF SKIN AND MUSCLE

REPORT OF AN ILLUSTRATIVE CASE

JAY D. WHITHAM, M.D., NEW YORK

History.—The treatment of cutaneous angiomas or "port-wine" birth-marks by the roentgen ray is not satisfactory, and the case reported here will illustrate in an extreme degree how dangerous it may be to attempt this form of therapy. The

Fig. 1.—Condition of patient, April 16, 1919: especially to be noted are the orbital cellulitis, the opening into the mouth and nose, and the large sequestrum in the malar and temporal regions which was removed at a later date.

case has especial interest as the roentgen-ray treatment was given by an eminent roentgenologist who is a teacher of this subject in one of our medical colleges. The method used to rebuild the maxillary sinus is believed to be original.

REPORT OF CASE

W. E. E., a man, aged 23 years, whose mother died of dropsy at the age of 40, and whose family history otherwise was negative, had had the diseases of childhood, including measles, chickenpox and mumps. He stated that he had smallpox in 1911, and that he fractured his left forearm when a small boy. Venereal infection was denied. He was told by his parents that at birth he had a "port wine" birth-mark, covering almost the entire right side of his face. Nothing was ever done to remove this blemish until December, 1917. At that time, he stated, he feared the birth-mark would disqualify him for military service, and to insure his acceptance in the army, he applied for treatment to his physician, who referred him to a roentgenologist. The patient stated that he was given about eighteen roentgen-ray exposures, each of from five to ten minutes' duration. These were given in series of three consecutive days, with rest periods between. About March 15, 1918, two weeks after his last roentgen-ray exposure, a blister began to form all over the birth-mark, which later ruptured and exuded serum. Part of this blister had healed when he was inducted into the army, May 25, 1918. A few days later, ulceration and sloughing began to occur, affecting at first the skin and soft tissues of his cheek, and soon spreading to the temporal region and deeper structures. By September, the soft tissues of the cheek had sloughed off,

Fig. 2.—Operation, Feb. 19, 1920, under procain anesthesia: flaps of skin cut to form a lining for the maxillary sinus.

leaving a large opening into his mouth and nose through the maxillary sinus.

Feb. 16, 1919, these notes were made: "Patient weighs 160 pounds (normal weight, 180 pounds). The right malar bone and a large part of the right superior maxilla are denuded and necrotic, with a very bad odor. The undestroyed portions of the right masseter and buccinator muscles are exposed. He has an intense right orbital cellulitis."

Fig. 3.—Operation, Feb. 19, 1920.: skin flaps brought together and sutured with silk; forehead flap outlined.

March 28, the right eye was enucleated, as the bulb was virtually destroyed. At the same time, the right malar bone and a portion of the right superior maxilla were removed as sequestrums (Fig. 1).

May 28, an extensive destruction of the squamous portion of the temporal bone and overlying soft tissue was present.

Sloughing tissue and necrotic bone was removed down to the inner plate of the temporal bone. The temporal region remained open, discharging foul-smelling pus for several months; but after the removal of several small sequestrums, it began to granulate over, so that by Nov. 10, 1919, the bone and soft tissues were covered over with epithelium, except for an ulcerated patch about one-half square inch, just below the outer angle of the orbit.

Sept. 29, 1919, the patient had a typical attack of jacksonian epilepsy, involving the side of the body opposite the lesion. This attack was of fifteen minutes duration, and was followed by profound sleep. He became very cyanotic during the attack, and death seemed imminent. This attack was repeated about three months later, but was less severe.

By Feb. 19, 1920, the wounds were clean, and the patient, having spent several weeks on a farm, was in excellent general physical condition. Previous to that date, a wax model of the face had been made, and the operation contemplated was rehearsed, exact patterns of flap needed being cut from thin sheets of tin. The object of the first operation was to provide a covering for the maxillary sinus and to cover over the hideous loss of tissue of the cheek.

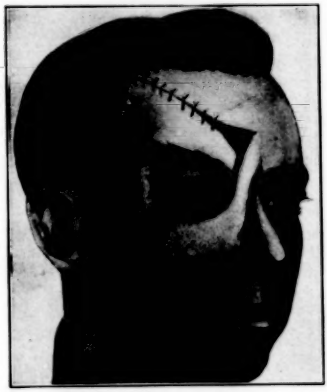

Fig. 4.—Operation, Feb. 19, 1920: forehead flap brought down and secured in place with interrupted skin sutures.

Operations and Result.—February 19, under procain anesthesia, a skin lining for the outer wall of the maxillary sinus was made by the turning together of two flaps—one from the cheek below the opening, and the other from the side of the nose (Fig. 2). These were sutured together with interrupted silk stitches (Fig. 3). This step I believe to be essential to the success of the operation. A large, pear-shaped flap including tissues down to the pericranium was then cut from the right forehead, having a thick pedicle, including all the tissue between the eyebrows. This was brought down and sutured without tension, over the turned-in flaps. Interrupted skin sutures were used. Small rubber tissue drains were placed in each lower angle of the wound. A little nitrous oxid gas was then given. The scalp was extensively undercut in the right parietal region, and the forehead wound closed by button tension sutures of silkworm gut (Fig. 4).

The wounds healed quickly, as shown in Figure 5, from a photograph taken a month later.

April 5, the second operation was performed. This was designed to restore the soft tissues over the temporal region, to cover the exposed dura in this region with healthy skin and muscle, and to effect a cosmetic result. The wound in this location was carefully freshened, and at that time it was noted that in several places the squamous plate was entirely wanting. Two horizontal parallel incisions were made in the scalp, commencing above the right ear and extending back to the region of the external occipital protuberance. The incisions were 2½ inches apart. The flap, thus outlined, was cut to include the remnants of the temporal muscle, was brought forward by sliding, and sutured into the defect by

Fig. 5.—Ten days after the operation of April 5, 1920, which was performed under ether anesthesia. The method of sliding forward the flap of skin and temporal muscle to cover the exposed dura is shown.

interrupted silkworm-gut stitches. The defect was thus covered with healthy scalp, and a portion of the temporal muscle. The scars resulting were for the most part in the hairy portions of the scalp, and therefore not so conspicuous (Fig. 5).

A month later the pedicle of the forehead flap was returned. At a future date, still further improvement can be obtained by

Fig. 6.—Condition after healing of wounds and return of pedicle to forehead. The patient is wearing an artificial eye.

scar excisions and skin grafting, to correct the ectropion present in the lower eyelid.

By May 1, 1920, the wound had healed (Fig. 6). The patient has had no recurrence of his convulsions, has gained 25 pounds in weight, and is now in perfect health.

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SATURDAY, FEBRUARY 12, 1921

THE TRANSFORMATION OF ACUTE INTO CHRONIC INFECTIONS

How and why do chronic infections occur? In the terms of prevailing theories of immunity it is easy to understand the occurrence of acute fatal infections which overcome the resistance of the host, the parasite then growing virtually unimpeded until the victim succumbs. Likewise, the infections which arouse the immunologic processes of the host until they destroy the invader are easily comprehended. But less satisfactorily explained is the fact that many infections pass from an acute to a chronic stage, the parasites continuing to thrive on a small scale, not only persisting locally but also spreading through the blood and lymph to establish new foci, sometimes without any evident reason whatever. Although in the explanation of chronic infection we invoke a theory of immunity of the parasite against the host, balancing itself against the resistance of the host to the parasite, it will probably be generally agreed that this theorization is recognized to prevail merely for lack of a better solution of the problem, which is one of the greatest importance. Some recent experimental investigations by Morgenroth which throw new light on the subject of chronic infections will therefore probably arouse new interest in this field of research.[1]

These experiments concern the phenomenon of superinfection, that is, the reinfection by a new inoculation of the same organism with which the individual is already infected. As clinical investigators long since learned in the case of syphilis, the infected subject behaves differently from the normal individual, as shown by the difficulty or impossibility of producing a new primary lesion in a syphilitic, even on direct intentional inoculation with syphilitic virus. Robert Koch put the problem on an experimental basis by his observation that a guinea-pig that has been infected for some time with tuberculosis does not develop the usual local tuberculous lesion when reinoculated with a suitable dose of tubercle bacilli. Instead of the development of a local nodule at the site of inoculation after an incubation period of several days, followed by infection of the adjacent lymph glands, as is characteristic of first infections in the guinea-pig, the reinoculation causes a prompt acute inflammatory reaction which heals completely, without either local or glandular tuberculous lesions following. This fundamental observation has been the starting point of many subsequent investigations on the principles of immunity in tuberculosis, and one important development has been the demonstration that if the guinea-pig recovers from a tuberculous infection it again becomes susceptible to reinoculation as in a normal animal; that is, the resistance to reinfection depends on the existence of active infection, and does not long survive the subsidence of the infection. This corresponds perfectly to the clinical observation that persons who have recovered from syphilis may again acquire a new infection with the typical primary lesion. Apparently the same principle applies in numerous other diseases that pursue a chronic course, such as malaria. Of course, the degree of immunity in these cases is not unlimited, and an adequate dose may lead to reinfection.

In animals or persons thus protected against a reinfection, what happens to the newly introduced organisms? Are they overwhelmed and destroyed by virtue of the existing immunity, which is unable, however, to overcome the parasites already living in the host, or do they enter the host and at once take on the same properties as the resident parasites, whereby they also produce chronic infections without a first acute stage? Heretofore the identity of the reinfecting organisms with those of the primary infection has made it impossible to follow the two infections and to learn what happens to each group of organisms, and it is in this respect that Morgenroth has produced new evidence. He finds that mice may be so infected with specially prepared strains of hemolytic streptococci that a condition of chronic sepsis results, the animals remaining alive but harboring the cocci for long periods of time before succumbing to their infection. If such infected mice are given a dose of streptococci of greater virulence, which suffices to kill normal mice in from eighteen to twenty-four hours, they survive with apparently little harm if proper dosages have been used. This capacity to resist an otherwise fatal reinfection begins to manifest itself within six hours of the first infection, and is fully developed in twenty-four hours, disappearing if the animals happen to recover from the first infection. The resistance is manifested not only against the same strain of streptococci that was used in the first infection, but also sometimes against other strains that possess marked differences from the first, which fact has made it possible to follow the career of both strains after the reinfection. It was found that the second strain is not entirely destroyed by the immunity of the host, but that both strains persist in small numbers throughout the subsequent course of the chronic infection; that is, the virulent organisms used

1. Morgenroth, J.; Biberstein, H., and Schnitzer, R.: Die Depressionsimmunität, Deutsch. med. Wchnschr. **46**: 337 (March 25) 1920.

in the reinfection have acquired at once the same character as the organisms of the chronic infection, their virulence having apparently been depressed. Morgenroth says: "The defensive forces that here intervene are different from those hitherto known, in that they do not lead to the death of the micro-organisms, but merely to a depression of their virulence. We therefore designate this new sort of immunity as 'depression immunity.'" It can have nothing to do with anaphylaxis, since it is present within less than twenty-four hours of the first injection, and disappears shortly after spontaneous remission of the preinfection. The lack of bactericidal phenomena distinguishes it from the usual forms of defense against acute primary infections, or against infection of immunized animals. Since this "depression immunity" is demonstrable so soon after the first infection has been set up, it seems probable that it is responsible for the production of the chronic infection itself, and that every acute infection which does not kill rapidly but develops a chronic course, such as subacute endocarditis or chronic anthrax and glanders, is a manifestation of this phenomenon. An explanation of this immunity reaction is scarcely ventured by Morgenroth, but it seems entirely possible to encompass it in the hypothesis of mutual immunization of host and parasite, if we assume that a small fraction of the reinjection cocci possess the same degree of resistance to the host which enabled the cocci first injected to secure a permanent foothold. Nevertheless, a line of study which has been stimulating and fruitful in tuberculosis research is now extended to the more rapidly acting organisms, which should result in much increase of our understanding of the ways in which chronic infections arise in man, and how they are controlled and overcome.

BLACKWATER FEVER

Although what is known as blackwater fever has been described for a century or more and was mentioned by French medical officers on the West Coast of Africa as early as 1820, its causation is not yet definitely ascertained. To most readers the name will naturally suggest a disease of tropical or subtropical countries, but it has also been observed in many regions that would scarcely answer this description. Blackwater fever has as its most prominent symptom the elimination of hemoglobin in the urine; hence the designation hemoglobinuric fever. A widespread view attributes its occurrence to malaria. This has much to commend it. Several writers have no hesitation in asserting that there is no record of any carefully studied case of blackwater fever in a person who has not previously suffered from malaria, and generally much malaria. Stephens,[1] for example, who has investigated the subject extensively points out that if blackwater fever were a disease *sui generis* the parallelism with malaria would be difficult to explain. The hemoglobinuric symptoms are less pronounced or wanting in those who protect themselves from malaria by quinin medication or careful personal prophylaxis. Nevertheless, it is true that malaria has been found concurrent with or propinquitous to diseases like kala-azar and trypanosomiasis, which have independent etiology.

In a recent careful study of a hundred cases of blackwater fever in the Balkans, Dudgeon[2] of St. Thomas' Hospital, London, obtained a malarial history in every instance. The significance of this is accentuated by the further fact that in nearly half of these patients examined for malarial parasites, organisms were found, namely, *Plasmodium vivax* and *Plasmodium falciparum*. Seyfarth,[3] too, found them in the blood in nine out of ten cases. An invariable find is scarcely to be expected when one recalls that the demonstration of malarial parasites in the blood depends almost entirely on the period when the examination is made.

Besides malaria, quinin also has been held responsible for the hemoglobinuric fever, which has, in fact, been described as quinin poisoning. On consideration of the countless thousands who take this curative alkaloid, it seems surprising that the manifestation of harm from it should be confined to relatively few persons who may have chanced to contract malaria. Dudgeon has offered further derogatory evidence in that quinin administered by any method during an attack of blackwater fever failed to increase its severity or to influence the progress of the disease apart from its effects on the malaria. Even when administered to animals rendered anemic, quinin did not call forth a hemoglobinemia. The amount of quinin recovered from the urine during periods of hemoglobinuria was not unlike that present in cases of malaria. The theory of a toxic idiosyncrasy to quinin apart from malarial conditions thus finds little support. The search for spirochetes as a possible etiologic agent in blackwater fever also had entirely negative outcome. Nor could a relation between this disease and syphilis be demonstrated, although such a possibility has been suggested.[4]

In view of the rôle of pigments in the conspicuous symptoms of blackwater fever, it is noteworthy that true jaundice, due to the presence of bile pigment in the blood plasma, occurred in a large percentage of Dudgeon's cases that ended fatally. Although there was no evidence of an increased fragility of the red blood cells, hemoglobinemia, varying from a deep red coloration of the plasma to a faint tingeing, occurred in the acute stages of the disease. Injections of sterilized urine obtained during the hemoglobinuric period from patients exhibiting blackwater fever failed to produce any ill effects in animals, and thus negate the presence

1. Stephens, J. W. W.: Blackwater Fever, in Osler and McCrae: Modern Medicine **2**.

2. Dudgeon, L. S.: Blackwater Fever, J. Hyg. **19**: 208 (Oct.) 1920.
3. Seyfarth: Arch. f. Schiffs- u. Tropen-Hyg. **22**: 128, 1918.
4. Napier: Is Syphilis a Factor in Blackwater Fever? Indian Med. Gaz. **48**: 389 (Oct.) 1913.

of any notably toxic excretory constituent. Furthermore, Dudgeon could not secure indications that blackwater fever is in any way related to anaphylaxis. The mystery of its origin still remains, while its association with malarial factors has become more emphatic than ever before.

THE ALLEGED HARM FROM PROTEIN IN THE DIET IN CERTAIN DISORDERS

Every physician must realize that tradition plays a significant part in the formulation of rules for treatment in those cases in which specific therapeutic procedures are not clearly indicated on the basis of well established facts. Hence, various dicta have become popular even among the lay public. Thus, one reads the advertisements that "an apple a day keeps the doctor away," and hears the admonition to "feed a cold and starve a fever." Not long ago the harm which a generalization of the last sort can bring about by thwarting the saner indications of scientific study was referred to in THE JOURNAL.[1] The slender evidence on which some of the reiterated statements of medical literature hang often becomes apparent when the basis for the helpful truth which they are supposed to proclaim is sought. All too often the thread of supposition breaks from the strain of its inherent inaccuracy.

An illustration of this is furnished by the common "diet rules" applicable to the management of arteriosclerosis, and particularly the symptom of increased blood pressure. The medical consensus of today would doubtless be represented by the advice to "keep the diet low in protein." One writer with a large "following" of readers has no hesitation in proclaiming that the diet "must be low protein" in character, and that "very little animal food should be taken." More specific directions limit the nitrogenous intake to about 65 gm. of protein a day. The corollary of such a prescription and proscription obviously is that a diet rich in proteins has an unfavorable influence on blood pressure. Mosenthal,[2] however, has made a study of the effects of dietaries high and low, respectively, in protein on patients in the medical clinic of the Johns Hopkins Hospital. From his observations it would appear to be exceptional for a low protein diet to diminish the blood pressure or a high protein diet to raise it. Mosenthal has called attention again to Benedict's[3] observations that, by underfeeding, the blood pressure of healthy young men could be distinctly reduced. A subcaloric diet may therefore have some beneficial effect in the therapy of hypertension. But underfeeding is by no means synonymous with low protein diet. Furthermore, in Benedict's men secondary anemias developed—a fact not to be overlooked in a critical analysis of food factors. We are probably safe in following Mosenthal's experimentally founded conviction that in most instances a low protein diet continued for a period of a few weeks is without effect on the blood pressure of patients with hypertension.

Another of the dietary dicta springing from vague generalizations pertains to the effect of high protein diet in cases of nephritis. How often one hears the statement that a regimen rich in protein is harmful in chronic renal disease, and, if persisted in, leads to an increase in the albuminuria. The implication that the protein ingested is excreted as such involves the improbable assumption that it is absorbed unchanged, and the deduction that the protein in the nephritic urine is the foreign or ingested protein. The latter conclusion has repeatedly been denied on the basis of experimental studies. Wordley[4] has demonstrated that variations in the amount of protein in the diet have no effect on the amount of albuminous matter excreted in the urine; in fact, he states that such increases in the diet do not increase albuminuria. Of course, the urea content of the blood may respond to changes in the protein intake. That, however, is another matter. Unfounded dicta are objectionable; they may contain a germ of important truth, but they are equally liable to hand down the unwisdom of demonstrably erroneous statement.

1. Neglected Possibilities of Dietotherapy, editorial, J. A. M. A. **75**: 1572 (Dec. 4) 1920.
2. Mosenthal, H. O.: The Influence of Protein Food on Increased Blood Pressure, Am. J. M. Sc. **160**: 808 (Dec.) 1920.
3. Benedict, F. G., et al.: Human Vitality and Efficiency Under Prolonged Restricted Diet, Pub. 280, Carnegie Institution of Washington, 1919.
4. Wordley, E.: The Effect of High Protein Diet on Albuminuria and Blood Urea in Cases of Nephritis, Quart. J. Med. **14**: 88 (Oct.) 1920.

Current Comment

"GROUP PRACTICE"—A MENACE OR A BLESSING

A most important innovation, commonly described as "Group Practice," has appeared in this country during the last two or three years. It was referred to incidentally by Dr. Billings in his discussion of "The Future of Private Medical Practice," in THE JOURNAL last week (February 5). This week we publish a plea for group medicine by Dr. Leonard, who is connected with a recently organized group (the Academy of Clinical Medicine) in Duluth. Groups under various names, such as clinics, academies, etc., are being organized over night, as it were, here, there and yonder, in towns of 10,000 or 15,000, as well as in the larger cities. The development of modern medicine, and especially of scientific laboratory diagnosis, may make necessary some such cooperative plan as these groups are intended to provide. Equipment, laboratory, roentgen ray and the like, which the average practitioner is not able to provide or to utilize satisfactorily, may thus be cooperatively provided. But what of the outcome of this new development? What of the physicians outside the group? Some evidently are seeing the advantages and are forming other groups—perhaps in some instances forced to do so in self-defense! Will not this mean group against group? May it not be one more step toward the complete elimination of the general practitioner—of the family adviser—of him who heretofore has reflected to

the public the altruistic motives of the medical profession? Does it mean that the family physician is being replaced by a corporation? Will commercialism or professional altruism control the management of these corporations, or groups if they are not incorporated? In thinking over this matter it is important to look ahead and see what influence this new development may have on the public. How will the average layman view it? Will he not prefer state medicine? We are asking, not answering, the questions—presenting but not attempting to solve the problem; for if we mistake not, it will prove to be a serious one.

ORIENTAL UNIVERSITY—REVOKE ITS CHARTER

Our Paris correspondent this week reports that the Oriental University of Washington, D. C., is offering medical and dental degrees for sale in France. Only a few weeks ago similar reports were received from Switzerland. Repeatedly, publicity has been given showing the low type, if not the fraudulent character, of this institution. Its medical diplomas are not recognized by any state licensing board, so far as we know. Nevertheless, it is still being permitted openly to disgrace American education in the eyes of the world. The responsibility for this institution rests with Virginia, from which state it obtained its charter. It is high time that this charter should be revoked. Will Virginia continue to foster this burlesque on education, which is disgracing American educational institutions abroad?

THE MICRO-ORGANISMS OF GAS GANGRENE

The demonstration by Bull that it is possible to produce a serum antitoxic to the poison elaborated by *Bacillus welchii* justly gave hopes of advance in the treatment of cases of human gas gangrene, a disease conspicuous as a cause of death early in the European war. The Welch bacillus, however, is not the only organism that may be concerned in gas gangrene. Combinations of such bacteria, including varieties that are themselves not highly harmful, have proved to exhibit unexpectedly marked pathogenicity. The question has therefore arisen as to the specificity of the antitoxic serums now available. In a report last year to the British Medical Research Committee from the Wellcome Physiological Research Laboratories, Henry and Lacey [1] have substantiated the fact that the antitoxin promoted by Bull affords complete protection to laboratory animals, not only against infection by any strain of *B. welchii*, but also against a combination of this organism with *B. sporogenes*. It does not protect against *Vibrion septique* and *B. oedematiens*, for which correspondingly specific antitoxic serums have also been produced. By the use of mixtures of specific serums in an animal infected with more than one of the organisms producing gas gangrene, it is possible to destroy a number of the latter in correspondence with the serums used. Consequently, as the British investigators point out, it has become possible to use the immunized laboratory animal as a sort of filtering mechanism which will retain or hold up certain anaerobes by inhibiting their growth in the animal, and will at the same time allow the growth and subsequent passage into the blood stream of any other anaerobe against which no specific protection has been induced. In this way an extremely valuable diagnostic method for determining the pathogenic anaerobes present in a mixed culture is secured. When animals were inoculated with the pathogenic cultures from fifty cases of acute gas gangrene, Henry and Lacey found that a mixture of *B. welchii* and *V. septique* antitoxins protected in a large number of the trials. In a few there was failure, and from them the bacteriologists identified *B. oedematiens, B. fallax*, a combination of *B. welchii* with a strain of *B. histolyticus*, and two strains of unidentified anaerobes. The prominent micro-organisms associated with human gas gangrene are thus perhaps identified better than before, and the flora of its wounds is more clearly established.

1. Henry, H., and Lacey, Margaret: On the Anaerobes Responsible for Gas Gangrene in Man, J. Path. & Bacteriol. **23**: 281 (June) 1920.

BENEFICIAL ASPECTS OF MILITARY APPRENTICESHIP

Whatever one's attitude may be toward the question of universal or compulsory military service, the physical benefit that accrued to many persons unexpectedly placed in uniform during the recent war cannot be gainsaid. Aside from the innumerable, often unanticipated advantages that arose from calling attention to remediable bodily defects as the result of a careful medical examination of a large group of our population, the engagement in the service was helpful in other ways. The outdoor life with suitably regulated exercise, and above all the adequate system of feeding, led to gains in body weight and vigor that were surprising to all concerned. In thousands of instances as much as twenty pounds' increment in size was recorded under properly controlled supervision. The unfortunate ravages of as yet little understood epidemics of influenza and pneumonia tended to obscure the good that resulted to so many American young men from their changed mode of life. Their seeming vigor was repeatedly the subject of favorable comment. A peculiarly noteworthy illustration of what the regimen represented by military service may insure from the standpoint of personal hygiene has been reported by Rothacker [1] of Jena. A careful examination of a group of sedentary workers drafted into the reserve, and therefore no longer to be designated as youthful men, was made at the beginning of their camp training and at the end of ten weeks in 1916 when they were ready for field service. The improved appearance and physique, the replacement of the pallor of indoor work by the rosy complexion of the outdoor life, might be anticipated. The anemic type had been replaced by a more normal person. The tendency of the hematopoietic organs to respond to the altered conditions of living expressed itself in a gain in erythrocytes and in hemoglobin in the blood. The leukocytes count also showed improvement. In days of peace we may well take to heart the lesson of such enforced experiences.

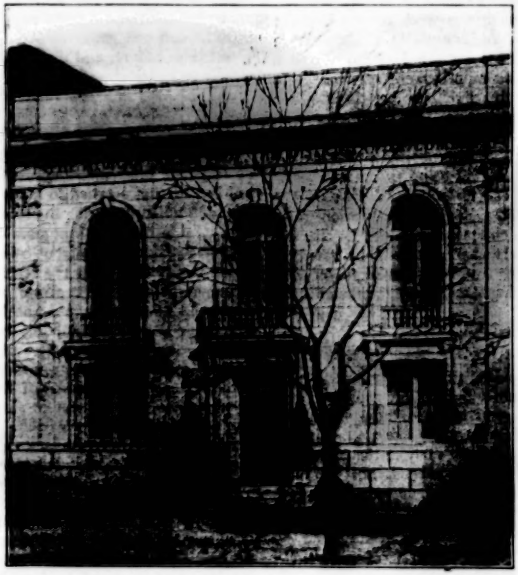
1. Rothacker, A.: Wirkung des Militärdienstes auf Stubenarbeiter, unter besonderer Berücksichtigung des Blutbefundes, Ztschr. f. klin. Med. **89**: 387, 1920.

They constitute an indisputable demonstration of what properly directed rigorous outdoor life can do to restore the anemic type of sedentary indoor toiler to a more normal condition of health, even when the stimulus of youth has passed.

Association News

THE DEDICATION OF THE BUILDING OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA

A significant event for physicians of the District of Columbia was the dedication of its new building, by the Medical Society of the District, January 12. The large audience included visiting and local physicians, their families and friends, many of whom had contributed to the building fund. The program was impressive. After calling the society to order, its president, Dr. H. C. Macatee, introduced the Rev. Charles Wood, D.D., who pronounced an invocation. Dr. Charles W. Richardson, a member of the board of trustees of the society and also of the building committee, was next introduced, and after delivering a short address, he presided at the meeting. A dedicatory address was read by a former president, Dr. William Gerry Morgan. The presentation of the key of the building to the society by Dr. Richardson; its acceptance by the president; an address by Dr. E. Y. Davidson, chairman of the building committee, and the benediction pronounced by Dr. Wood concluded the exercises. The program was introduced, interspersed and closed with music. At the close of these formal exercises the officers of the society received, and the building was inspected by, those in attendance.



NEW HOME OF THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA

In his address, which should be of special interest to other societies contemplating the construction of permanent homes, Dr. Richardson said that during the greater part of the 103 years of its history the society had practically no assets. During the last four years, however, a new policy had been developed and as a result the holdings of the society, largely invested in its home, are over $80,000. The society previously had made three attempts to secure a building of its own. This, the fourth endeavor, marked the progress of its successful labors.

The ground was broken on April 5, 1920, by Dr. Francis R. Hagner, who at the time was president of the society; the cornerstone was laid on May 6, and finally the completed building becomes the center for the society's activities. A committee of women, interested in the society's effort, cooperated with the building committee in providing and arranging the interior decorations.

Dr. William Gerry Morgan, in his remarks stated that the funds which made it possible to build had been raised during the two years just past. In addition to the moneys collected, there has been invested in the building $50,000 of borrowed money secured by a mortgage. He adds that the members of the society desire that this debt shall be paid in the near future. The value of such an ideal as securing and maintaining its headquarters in promoting the solidarity of the organization is shown by the increased interest in the organization which the members are taking since the building project has been undertaken. He then reviewed the service both of the Medical Society of the District of Columbia and also of the medical profession at large, which has been rendered to the public. His address was brought to its conclusion with a statement of the tasks yet to be carried to successful conclusion and an appeal to both physicians and the public for the appreciation of the work and the responsibilities for service of the medical profession.

As will be noted the building is Italian Romanesque and is in keeping with the architectural type of the federal buildings. It is constructed of Indiana limestone and is pronounced to be one of the most artistic structures in Washington. The entrance hall is large and commodious and on each side there is a large room, 18 by 25 feet. The foyer is flanked by well-equipped dressing and toilet rooms and leads into an auditorium arranged to seat about five hundred. On the second floor is a room for the society's library, and on either side of the landing of the stairway are serving quarters. There are also two commodious committee rooms.

The building is a credit to the Medical Society of the District of Columbia. Considering the number of physicians in the district it indicates what a comparatively small number may accomplish when the will to do exists. How many constituent associations or component societies with a membership of 560 have a permanent home?

THE BOSTON SESSION

Preliminary Program for Social Events

The Local Committee on Arrangements for the coming annual session of the Association to be held in Boston, June 6-10, announces the following tentative program of social events:

The American Golfing Association is arranging a tournament for the days preceding the Scientific Assembly. A series of clinics is being prepared to be given on Monday and Tuesday of the week of the annual session at the various hospitals in Boston. The Massachusetts Medical Society is planning a reception and a ball in honor of the President of the Association. Social events for the ladies that are under consideration are an afternoon tea at the Medical School and visits to points of local interest near Boston. Another social event,

which is being planned, is an excursion to Plymouth on the Saturday following the section meetings. This will have an especial interest since the Pilgrim Tercentenary Celebration is to take place this summer.

As previously announced, the Local Committee on Arrangements will gladly cooperate in assisting those who may wish to arrange for reunions of physicians who, during the World War, served at the same post or with the same command.

ANNUAL MEETING OF BOARD OF TRUSTEES

Election of Editors of Special Journals and Members of the Council on Pharmacy and Chemistry

At the meeting of the Board of Trustees held at the headquarters of the Association, Friday, February 5, the following Fellows were reelected for terms of six years to positions on the editorial boards of the special journals published by the Association as indicated:

RICHARD C. CABOT, Boston, *Archives of Internal Medicine;*
JOHN HOWLAND, Baltimore, *American Journal of Diseases of Children;*
SAMUEL T. ORTON, Iowa City, Iowa, *Archives of Neurology and Psychiatry;*
MARTIN F. ENGMAN, St. Louis, *Archives of Dermatology and Syphilology.*

E. S. JUDD, Rochester, Minn., was elected to the editorial board of the *Archives of Surgery*, succeeding Dr. William Mayo, who resigned.

The Board of Trustees reelected the following members of the Council on Pharmacy and Chemistry: L. G. Rowntree, Rochester, Minn.; Torald Sollmann, Cleveland, and Lafayette B. Mendel, New Haven; and for a term ending in February, 1924, to fill a vacancy occasioned by the resignation of Prof. Henry Kraemer, Dr. Charles W. Edmunds, Professor of Therapeutics and Materia Medica, University of Michigan, Ann Arbor.

Miscellany

PHYSICIANS AND THE INCOME TAX

As usually happens at this time of year, THE JOURNAL has received many letters from physicians asking for information regarding the income tax law and the proper manner of filling out income tax returns. Each year THE JOURNAL has endeavored to advise its readers on these points (see JOURNAL A. M. A., Vol. 74, No. 2, Jan. 10, 1920, page 126). The general provisions of the law are, of course, the same for physicians as for others. Every citizen of the United States, no matter where he may reside, and every person residing in the United States, whether a citizen or not, or whether married or single, must file a return if his net income for 1920 amounts to $1,000. Internal revenue officials say that frequently blanks sent to supposedly taxable persons are returned crossed, "no taxable income." This is not acceptable evidence of exemption. If one's net income is below the exempt amount, the burden of proof of this fact is on the citizen and as carefully prepared sworn returns should be made as in the case of a taxable income. In addition to the $1,000 exemption for single persons and $2,000 for married, $200 may be deducted for each child under 18 or for any person over 18 incapable of self-support because mentally or physically defective who is receiving his chief support from the head of the house. These amounts may be deducted from the net income. Those having a net income of under $5,000 should fill out Form 1040a. Those whose income is $5,000 or over should fill out Form 1040.

It is when the doctor begins to ask, "What is my net income for 1920" that trouble begins. Physicians are likely to regard gross receipts as constituting their professional income. Doctors exchanging experiences will say, "I had a good year last year. I took in over $12,000," or "I did better than that. I booked nearly $15,000." But gross receipts are not income for a doctor any more than for a department store. Another difficulty lies in the fact that few physicians separate their professional expenses from their personal expenses. As a result, most physicians have probably paid taxes on larger amounts than the law requires through lack of understanding of the law or through failure to keep sufficiently accurate accounts to enable them to determine exactly what were their incomes and what were their expenses.

Leaving out of account any profits from the sale or rental of houses and lands, income from stocks, bonds, etc., and considering only the income derived from professional work, three things must be kept in mind: (1) a doctor's gross professional income for the year is the sum of all the money he has received during that year for professional work, regardless of when the services were rendered; (2) all expenses necessary to carry on one's practice (investment excepted) are deductible; (3) one's net professional income is the difference between one's gross receipts for professional services and one's expenses connected with professional work. This is the amount, less personal deductions, on which income must be paid.

FINDING THE NET INCOME

It is necessary, then, for a physician to ask himself two questions: (1) What was the total amount I received last year for professional work, and (2) what expense was connected with that work?

1. Gross income is the sum of all amounts actually received; not business done, but cash actually received. Old accounts collected for previous services, no matter how far back, or money collected on notes taken for services rendered in previous years but falling due during the past year would also be included. If the doctor keeps his books properly, his cash account, showing all money received, whether spent, banked or invested, should show his gross income for the year.

2. Professional expenses are the necessary expenses of carrying on one's practice or in purchasing articles which will be consumed in one's professional work. This would include office rent and maintenance, such as heating, lighting, cleaning, office telephone, salaries of stenographers or attendants, and the cost of any drugs and dressings used in treating patients. If a physician maintains an office apart from his house, he cannot deduct any part of his house rent or expenses as a business expense, even if he occasionally sees patients at his house. But if the only office which he maintains is in his house, then he may deduct a proportionate amount of the house rent and the cost of maintenance as a professional expense. If he owns his own home and uses it for professional purposes, however, he cannot charge himself office rent. Office furniture and permanent equipment are investments but are subject to depreciation.

WHAT MAY BE DEDUCTED

Whatever form of transportation a physician uses, the cost of maintaining such transportation is a deductible expense. The original cost, however, is an investment and not an expense. So that if a doctor buys an automobile, he cannot charge off the cost of the car as an expense; he can charge off the entire cost of operating the car, so far as he uses it for business purposes. This includes gasoline, oil, tires, repairs, garage expense, chauffeur's wages, insurance, etc. In addition, he can charge off depreciation on the car itself amounting to the original cost of the car to him divided by the number of years of life of the car—not the number of years he can use it, but the number of years it can be used for any purpose. If the automobile is used for both professional and personal purposes, then both operating expenses and depreciation must be prorated.

The cost of all dressings, drugs and appliances for immediate consumption in the treatment of patients may be deducted. But instruments, office furniture and articles for permanent use are not expenses but investments and may not be deducted. Medical journals are an expense. Money paid out as subscriptions for these may be deducted. But books are an investment and so are not subject to deduction. But they do wear out or become obsolete. Some books, such as textbooks on anatomy, etc., are good for a life time,

others are worthless in a few years. A good general average is perhaps twenty years. So that one twentieth of the cost of books, not only of the ones bought during the year but also of those in the library, may be reasonably deducted as depreciation in one's library. Property bought before March 1, 1913, must be estimated at the value at that time and not at its original value. Dues in medical societies of a strictly professional nature are a legitimate expense, but dues for social organizations not professional in character, may not be deducted. Expenses incurred in attending medical society meetings are legitimate expenses. Heretofore, under the rulings of the Commissioner of Internal Revenue, only railroad fare and Pullman charges were allowed. Treasury Decision 3101, approved Dec. 16, 1920, provides that on business trips, expenses for meals and lodgings in excess of the amount one would have to pay at home for living expenses during the same period, that is, the difference between what one has to pay for meals and room away from home, and what the same accommodations would cost at home, may be deducted as legitimate expenses. This rule would apply only to lengthy absences, as on trips occupying only a few days the amount would be too small to be worth considering.

If a physician uses horses instead of an automobile, the cost of maintenance may be deducted, provided the horses are used entirely for professional purposes; otherwise, the proportionate amount. Maintenance would include feed, care, rent of stable, wages of driver or hostler, repairs on carriages, sleighs, etc. Depreciation to the proper amount can also be charged.

Physicians maintaining laboratories can deduct salaries paid to laboratory assistants, cost of chemicals and breakable apparatus, etc. Permanent apparatus is an investment and cannot be charged as an expense, but is subject to depreciation. Roentgen tubes and plates which are constantly breaking and being replaced come under the same head as drugs and bandages. As they say in the Army, "They are expendable property." In the case of oculists furnishing glasses for patients, there should be two distinct charges recorded on the doctor's books, one for professional services in examining the eyes and one for the glasses as merchandise. When this is done the cost of the glasses to the doctor may be deducted. Contributions and dues to churches and other philanthropic, benevolent, religious and humane organizations, up to 15 per cent. of the total income, may be deducted, but dues to clubs and social organizations are not business expenses and cannot be deducted.

It will be seen from the foregoing that it pays physicians to keep accurate accounts, not only of all receipts, but also of all expenditures. The more carefully this is done, the easier it will be for the doctor to separate business and personal expenses and to determine just how much it is costing him to carry on his practice and what is his actual professional income.

THE JOURNAL will be glad to answer any questions relative to the subject.

Passage of Oxygen Through the Lung.—The controversy which has raged for so long as to the question of whether the alveolar membrane of the lung acts as a passive structure in the passage of oxygen through it, or whether it has a more vital property, seems to be settled now. Barcroft's experiment, in which he lived for six days in a glass chamber, gradually exhausting the store of oxygen during this time, is now familiar history. In this experiment it was shown that when the tension of oxygen was decreased in the alveolar air to an amount corresponding to some 18,000 feet there was no evidence that the blood was charged with oxygen at any higher pressure than the alveolar air. The subject in question had the blood taken from an artery. It was quite blue. Though Haldane still would be in favor of the possibility of a secretory process, it seems fairly clear that the amount of oxygen passing into the blood is conditioned by known laws of physics and chemistry and that no special extra factor is necessary to explain the mechanism. The matter, of course, is of consequence in connection with the question of maintenance of high altitudes in flying.—*Med Science* 3:337 (January) 1921.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Annual License Fees for Physicians.—The city council of Anniston proposes to adopt a sliding license scale of physicians whereby an annual fee would be fixed on the basis of the earnings of the preceding year. Lawyers and dentists would likewise be included under the proposed measure.

Typhoid in Farley District.—Ten cases of typhoid fever among schoolchildren of Farley district have been reported to the Madison County Health Department. The infection has been attributed to pollution of the water which is distributed in barrels to schools having no natural source of water supply.

Quarantine for Venereal Diseases Legal.—The court of appeals has handed down a decision upholding the right of the municipal health authorities of Birmingham to confine and examine women suspected of being infected with venereal diseases. The decision reversed the action of the lower court which had ordered that several infected women be discharged from the custody of the health department at the detention hospital.

ARKANSAS

Malaria Campaign.—In cooperation with the office of the state health department, representatives of the Rockefeller Foundation are making arrangements for a complete malarial survey of several towns within the state, for the purpose of determining the best available measures for stamping out malaria.

Helena Community Survey.—In the course of the health crusade in Phillips County a community survey will be made by pupils of the high school of Helena. The two largest classes will be assigned to the actual field work in connection with their courses in practical civics. The city will be districted and groups of students will be assigned to make the survey. The investigations will include the study of housing, sewage disposal, water supply, general health and sanitation, organized charity, and juvenile and adult delinquency.

CALIFORNIA

Physician Arrested.—Dr. Herbert E. Long, San Francisco, is reported to have been given a suspended sentence of ninety days after having been found guilty on charges of drinking in a public place, assult and battery, and disturbing the peace.

Indicted by Federal Grand Jury.—It is reported that Dr. Waldo Richardson, former surgeon at the Marine Hospital, San Francisco, and his wife, Mrs. O. B. Richardson, have been indicted by the federal grand jury on the charge of sending literature and instruments relative to birth control to women students at the University of California. It is said that the government has evidence that the Richardsons planned to send similar circulars and letters to students at Leland Stanford University.

Semicentennial Celebration.—The Los Angeles County Medical Association celebrated the fiftieth anniversary of its foundation, January 31, by a banquet in the grand ballroom of the Ambassador Hotel, at which Drs. Walter Lindley, Joseph Kurtz and J. P. Widney, charter members of the society, were the guests of honor. Dr. William T. McArthur acted as toastmaster, and Drs. Walter V. Brem, Harlan Shoemaker and Joseph Kurtz delivered addresses detailing the history and progress of the society.

CONNECTICUT

New Officers.—At the annual meeting of the New Haven City Medical Society, January 19, the following were elected officers for the ensuing year: president, Dr. Raynham Townsend; vice president, Dr. John E. Lane; recording secretary, Dr. Arthur R. Weed; financial secretary, Dr. Samuel J. Goldberg, and treasurer, Dr. Frank H. Wheeler.

Public Health Council.—Plans are under way for the organization of a public health council in Waterbury, under the leadership of the city health officer and representatives of organized charities and the chamber of commerce. The council will have executive representatives from all health organ-

izations now operating within the city, and it is designed to promote greater cooperation in health work, to prevent overlapping of practical details, and to provide a clearing house for health information.

ILLINOIS

New State Directors.—Dr. Isaac D. Rawlings, for twenty-two years principal assistant chief of medical inspection of the Chicago Health Department, has been appointed State Director of Public Health, to succeed Dr. C. St. Clair Drake. ——Mr. W. H. H. Miller, Champaign, has been appointed by Governor Small as Director of the Department of Registration and Education, in place of Mr. Francis W. Shepardson.

Illegal Practitioner Arrested.—The Department of Registration and Education recently arrested two individuals for practicing medicine in East St. Louis without licenses. One of these, Felix Hightower, said he was formerly employed as a bricklayer and hodcarrier but that "there's more money being a medicine pedler than in carrying a hod." He was found guilty and committed to jail for thirty days. The other, John A. Porter, St. Louis, was fined $25 and costs. The department also arrested Mrs. Julia Harris, East Carondelet, who pleaded guilty to the charge of practicing midwifery without a license and was fined $25 and costs.

Chicago

New Hospital Opened.—The Misericordia Hospital, Forty-Seventh Street and Western Avenue, which will serve as a training school for Loyola University, was dedicated, February 2. The hospital was erected at a cost of $180,000 and will have 100 free beds supported by funds of the Associated Catholic Charities. Dr. Walter G. McGuire will be chief of staff.

INDIANA

Tuberculosis Association Elects.—At the annual meeting of the Indiana Tuberculosis Association, held at Indianapolis, January 27-28, under the presidency of Dr. Gardner C. Johnson, Evansville, the following officers were elected for the ensuing year: president, Dr. Eric Crull, Fort Wayne; vice presidents, Dr. Alfred Henry and Dean Stanley B. Coulter, and secretary, Mrs. T. A. Olney, South Bend.

James Whitcomb Riley Hospital.—Plans for a children's state hospital in memory of James Whitcomb Riley took definite shape at a meeting at the Claypool Hotel, Indianapolis, February 2. It is proposed to ask the legislature for an appropriation of $250,000 for the construction of a children's hospital building, with a maintenance and equipment fund of $150,000 a year for two years, after which the maintenance fund would be reduced to $50,000 a year. These amounts would probably be augmented by private bequests which would assure the maintenance and operation of the institution. The hospital would probably be situated near the Robert W. Long Hospital in Indianapolis.

KENTUCKY

Ward for Colored Children.—The Eleanor Tarrant Little Ward of the Red Cross Colored Hospital on Shelby Street, which was designed to care for colored children in Louisville, was recently opened for the reception of patients.

Health Council for Kenton County.—A committee including Dr. Arthur T. McCormack, Louisville, secretary of the state board of health, and Dr. John Risk Meek, chairman of the Kenton County Health Council, recently appeared before the city commissioner of Covington and urged that municipal authorities join with the county and state authorities in the formation of a health council for Kenton County. It was recommended that a joint board be formed and that a full-time city and county health officer be appointed with authority over all health matters in the county.

MASSACHUSETTS

Personal.—Dr. John L. Morse, following twenty-five years' service, has resigned his position as professor of pediatrics in Harvard University Medical School.——Dr. William L. Connery, Springfield, has been appointed dispensary physician of Westfield.

Public Health Week.—During public health week, observed by the city of Boston during the week of February 6-12, the importance of health was emphasized by lectures, conferences and exhibits held in the Mechanics Building under the auspices of the state and city health departments, Boston City Federation, the Red Cross and a number of other organizations. The week was initiated by the observance of public health Sunday on which day a health message was delivered from the pulpits of virtually all denominations. Special attention was devoted to the health of children, including infants, children of pre-school age, schoolchildren and the adolescent.

MINNESOTA

Health Poster Display.—The Hennepin County Tuberculosis Association has assembled a collection of colored posters on health topics for display in the libraries and other public places of Minneapolis. It is planned to hold the health exhibition at each branch library throughout the city for one week.

Personal.—Dr. William J. Mayo, Rochester, has tendered his resignation as vice president of the board of regents of the University of Minnesota. Dr. Mayo will retain his membership on the board.——Dr. Solon Marx White, Minneapolis, professor of medicine at the University of Minnesota, has been appointed chief of the department of medicine to succeed Dr. Leonard G. Rowntree, now associated with the Mayo Clinic.

MONTANA

Industrial Farm for Drug Addicts.—The establishment of an industrial farm for drug habitués, and stringent legislation to check the illegal sale of drugs are recommended by the legislative committee of the Montana State Medical Association as measures necessary to curb the use of habit-forming drugs.

Osteopaths Seek Recognition as Physicians.—According to reports, the osteopaths are seeking amendments to the law regulating the practice of osteopathy in Montana, which would define them as "osteopathic physicians" and permit them to perform minor operations and to administer local anesthetics.

NEW YORK

Bills to Aid Mental Defectives.—Senator Nathan Straus, Jr., has introduced bills in the legislature providing that the examination of a mentally defective child may be made either by two qualified physicians or by a competent physician and a psychologist, and that a magistrate may commit a child either before or after trial to a hospital or "other suitable place" for a period not to exceed ten days for observation and examination as to its mentality. The bills have the endorsement of the Department of Public Welfare of New York City.

Bill Protecting Animals.—The following bill has just been introduced in the New York senate:

Section 1. Section one hundred and eighty-five of the penal law is hereby amended to read as follows:

§ 185. Overdriving, torturing and injuring animals; failure to provide proper sustenance. A person who overdrives, overloads, tortures or cruelly beats or unjustifiably injuries, maims, mutilates or kills any animal, whether wild or tame, and whether belonging to himself or to another, or deprives any animal of necessary sustenance, food or drink, or neglects or refuses to furnish it such sustenance or drink, or causes, procures or permits any animals to be overdriven, overloaded, tortured, cruelly beaten, or unjustifiably injured, maimed, mutilated or killed, or to be deprived of necessary food, or drink, or who wilfully sets on foot, instigates, engages in, or in any way furthers any act of cruelty to any animal, or any act tending to produce such cruelty is guilty of a misdemeanor. Nothing herein contained shall be construed to prohibit or interfere with any properly conducted scientific experiments or investigations which experiments shall be performed only under the authority of the faculty of some regularly incorporated medical college or university of this state, *but such experiments or investigations shall not be made upon a living dog.*

§ 2. This act shall take effect immediately.

New York City

City Hospital for Bronx.—At a hearing held in City Hall, January 21, the Board of Estimate and Apportionment recommended the application of the Bronx County Medical Society to erect a municipal hospital in the Borough of the Bronx. The board referred the selection of the site and the manner of financing this new hospital to the committee of finance and budget.

Typhus Suspects on Italian Liner.—Four typhus suspects were discovered on the steamship *President Wilson* which arrived from Italian ports, February 1. The patients were sent to the Long Island College Hospital but later were returned to the vessel. One of the patients was said to have a positive case of typhus, another a possible case and the other two were classed as suspects. None of the 1,400 passengers on the *President Wilson* will be allowed to land until the danger is past.

Health Supervision Aids Industry.—The National Industrial Conference Board has just completed a study of the results of physical examinations in thirty-four large indus-

trial plants. In some of these plants physical examination of employees was begun in 1910, while in twenty-three such examinations were not instituted until 1914 or later. It is claimed that the physical examinations have resulted in increased efficiency, fewer accidents, a reduction of absence from work, lower labor turnover, elimination of tuberculosis and other contagious diseases, and a better adaptation of workers to their work.

NORTH CAROLINA

Clinic Taken Over by City.—The city of Charlotte has taken over the venereal disease clinic, formerly conducted as a private clinic, and has placed it under the supervision of the city health department. The health department plans to continue it as a general clinic in charge of a trained clinician, devoting his full time to the work.

New Board of Medical Examiners.—The personnel of the state board of medical examiners, recently appointed by the North Carolina State Medical Association, is as follows: Dr. Lester A. Crowell, Lincolnton, president; Dr. Lucius N. Glen, Gastonia; Dr. William M. Jones, Greensboro; Dr. William P. Holt, Duke; Dr. Clarence A. Shore, Raleigh; Dr. John G. Murphy, Wilmington, and Dr. Kemp P. B. Bonner, Morehead City, secretary.

NORTH DAKOTA

County Health Officer.—Dr. Homer A. Davis, Dickinson, has been appointed health officer of Stark County.

OHIO

Quarantine for Epidemic Encephalitis.—Lethargic encephalitis has been placed on the list of quarantine diseases in Cleveland by order of Health Director Rockwood.

Society Member Honored.—Dr. Read L. Bell, Springfield, was the guest of honor at the annual banquet of the Clark County Medical Society, held at the Hotel Shawnee, January 19. Dr. Bell has been a member of the society since 1878.

Physician's License Revoked.—It is reported that the state medical board, January 15, revoked the license of Dr. Lee Browning Warren, Lorain, on the charge that he had opened an office in Youngstown and had permitted a clerk to treat patients in his name. Dr. Warren has filed a petition in the common pleas court of Elyria to restrain the board from revoking his license.

OREGON

New Teaching Hospitals in Oregon.—A new county hospital is in course of construction on the campus of the University of Oregon Medical School. Efforts are also being made to secure a new general hospital with departments for crippled children and for psychiatry. When completed these will serve as important adjuncts to the teaching facilities of the medical school.

PENNSYLVANIA

Society Honors Members.—The Beaver County Medical Society held a banquet at the Welcome Club, Rochester, January 20, in honor of Dr. G. Y. Boal, Cooperstown. Dr. Boal is the oldest member of the society, and previous to his retirement a few years ago, had been engaged in active practice for more than fifty years.

Typhoid Carrier Discovered.—An investigation by the state department of health, following a recent development of twelve cases of typhoid fever in one community in central Pennsylvania, resulted in the discovery of a woman who was a chronic carrier of typhoid fever. The twelve cases developed among those who had attended a church dinner and had partaken of chicken salad prepared by the woman. The investigation later disclosed that she was responsible for at least thirty cases during recent years. The department, which has withheld the name of the community, will keep the woman under surveillance.

Physicians to Consult with Health Department.—In response to a resolution passed by the Pennsylvania State Medical Society at its last annual session, the state department of health has called the physicians of the state in consultation for the purpose of discussing methods of handling public health problems. Communications on scientific subjects will be prepared once a month by the department and forwarded to every medical society in Pennsylvania that these papers may be read and discussed at its meetings and that criticisms or suggestions may be returned to the commissioner of health. By this innovation the department hopes to secure the effective cooperation of an informed medical profession.

Chiropractors Seek Special Licensing Board.—Representative James A. Dunn of Philadelphia has introduced into the lower house of the state legislature a bill for the creation of a licensing board for chiropractic practitioners, to be called the Pennsylvania State Board of Chiropractic Examiners. It is reported that, far from sanctioning any new special boards, the department of public instruction is preparing a bill whose object is to wipe out all the special medical boards that have been created and to combine them under one central authority which shall have the power to examine and license all practitioners of the healing art. This bill will have the indorsement of the state administration, the state health department and the state medical society.

SOUTH CAROLINA

Mass Meeting in Interest of Health.—For the purpose of stimulating interest in public health, a mass meeting, sponsored by the civic organizations of the city, was held at Artillery Hall, Charleston, January 21. Dr. C. V. Aiken, U. S. P. H. S., and Dr. James A. Hayne, state health officer, were the principal speakers.

Hospital News.—The board of directors of Columbia Hospital, Columbia, has offered to transfer the institution to the city council of Columbia and representatives of Richland county. The offer, which was made at a conference between Dr. William Weston, president of the hospital association and members of the city council, was the outcome of a discussion regarding the institution's financial needs. The sum of $20,000 is necessary for the completion of the nurses' home, now in process of construction, and $30,000 is required to settle outstanding accounts.——The Spartanburg County Hospital, erected at an approximate cost of $350,000, is nearing completion.——The Steedley Hospital, Spartanburg, has been sold to the Young Women's Christian Association, which will use the building as its home and headquarters.

SOUTH DAKOTA

New Health Officer.—Dr. J. H. Swafford has been appointed health officer of the city of Aberdeen and Brown County.

Preliminary Examination for All Practitioners.—A bill, requiring that all persons who desire to practice medicine, surgery, osteopathy or "any form of the healing art" must pass a preliminary state examination, has been introduced by the health committee of the senate.

TEXAS

Negro Tuberculosis Sanatorium.—The state senate has passed the Bledsoe bill appropriating $300,000 for the establishment of a sanatorium for negro tuberculosis patients.

County Health Program Curtailed.—The commissioners of Jefferson County have voted to suspend the program of full-time county health work now under direction of Dr. Henry S. Capps, and the operations of the venereal disease clinic, under direction of Dr. Clarence A. Penman. The action was taken because of the claimed necessity of economizing in county expenditures.

UTAH

New Hospital for Ogden.—A new hospital, to be known as St. Mary's, will be built at Harrison Avenue and Twenty-Seventh Street, Ogden, at an approximate cost of $350,000. The institution will have accommodations for about 140 patients.

Public Health Lectures.—Dr. Caroline Hedger, medical director of the Elizabeth McCormick Memorial Fund of Chicago, delivered a course of lectures on the subject of children's health at the Social Hall Theater, Salt Lake City, January 24-31. The lectures, which were open to the public, were largely attended by public health workers and members of allied organizations and by parents of schoolchildren. The arrangements were made by the child welfare bureau of the Civic Center with the cooperation of other interested organizations.

VIRGINIA

County Society Reorganized.—The Tri-County Medical Society, which was chartered in 1915 but ceased its activities during the World War, was reorganized at a recent meeting

held at Fredericksburg. Dr. William A. Harris, Spotsylvania, was elected president, and Dr. Charles Mason Smith, Fredericksburg, secretary.

Levy Memorial Hospital.—The Phillip Levy Memorial annex to the Norfolk Protestant Hospital was formally dedicated, January 12. The new institution, which will serve as a maternity pavilion, was erected at an approximate cost of $96,000, the gift of Mrs. Phillip Levy, widow of the late Phillip Levy. The annex will have accommodations for twenty-eight maternity patients and will provide at least five free beds.

CANADA

Public Health News.—Nineteen medical inspectors and seven constables have been appointed by the Superior Board of Health of the province of Quebec in an effort to prevent the spread of smallpox from Hull and Ottawa.

Sudden Deaths from Arsenic Preparations.—An inquest into the cause of the fatal accidents resulting from the injection of an arsenic product, as reported in THE JOURNAL, January 29, p. 321, discloses that the fatalities resulted from the administration of a concentrated unneutralized solution of arsphenamin, under the impression that neo-arsphenamin was being employed.

Canadian Research Council.—At the next meeting of the Canadian Research Council, to be held in Ottawa, February 19, an interim appointment of chairman will be made to succeed Dr. A. B. Macallum, who resigned to accept the chair of biochemistry in McGill University, Montreal. The appointment of a permanent chairman will depend on the action of the federal government.

GENERAL

Dr. Frank Billings Named Congress President.—At a meeting of the executive committee of the Congress of American Physicians and Surgeons, January 29, Dr. Frank Billings, Chicago, was elected president of the next congress, which is scheduled to meet in Washington, D. C., May 2-3, 1922.

Bequests and Donations.—The following bequests and donations have recently been announced:

Montefiore Home, $4,000; Mt. Sinai Hospital, $1,000; Home for the Aged and Infirm Hebrews, Hebrew Benevolent and Orphan Asylum, and Sanitarium for Hebrew Children, New York, each $500, by the will of Mrs. Matilda Rich.

Anderson (S. C.) County Hospital, a trust fund of $25,000, by the will of Col. Joseph Newton Brown.

Visiting Nurse Association, Chicago, $25,000, by the will of Mrs. Cyrus Hall McCormick.

English Edition of Japanese Journal.—*Nippon no Ikai* has announced the publication of a new enlarged English edition, to be known as the *Japan Medical World*. The magazine will be published monthly, the first number appearing in January, and will contain original articles, current Japanese medical literature and medical news. The English columns which have been included in the Japanese edition during the last three years will now be discontinued.

International Ophthalmologic Congress.—Under the auspices of the American Ophthalmological Society, the Ophthalmic Section of the American Medical Association, and the Academy of Ophthalmology and Oto-Laryngology, an International Congress of Ophthalmology will be held in Washington, D. C., April 18-22, 1922. The officers of the temporary organization are as follows: president, Dr. George E. de Schweinitz, Philadelphia; vice president, Dr. Edward Jackson, Denver; secretary and treasurer, Dr. Luther C. Peter, Philadelphia; chairman of committee on organization, Dr. Edward C. Ellett, Memphis, Tenn.; on scientific progress, Dr. Edward Jackson, Denver; on finances, Dr. Lee M. Francis, Buffalo; on arrangements, Dr. William H. Wilmer, Washington, D. C., and on membership and credentials, Dr. Walter R. Parker, Detroit.

Death of Dr. William T. Sedgwick.—The death of Prof. William T. Sedgwick of the Massachusetts Institute of Technology, Boston, January 25, terminated a career of almost forty-five years spent in the interest of public health. Professor Sedgwick was born at West Hartford, Conn., in 1855, was graduated by the Sheffield Scientific School in 1877, received the Ph.D. degree from Johns Hopkins University in 1881, and the honorary degree of Doctor of Science from Yale in 1909. He was instructor in physiologic chemistry in the Sheffield Scientific School, 1878-1879, fellow and associate in biology in Johns Hopkins in 1879, and since 1883 assistant professor, then associate professor and finally professor of biology and public health in the Massachusetts Institute of Technology. He participated actively in many public health activities, serving as biologist of the Massachusetts State Board of Health from 1888 to 1896, curator of Lowell Institute, Boston, 1897, chairman of the Pauper Institutions Trustees, 1897-1899, and Institutions Registrar of the City of Boston, 1899-1900. He had been a member of the Advisory Board of the Hygienic Laboratory of the U. S. Public Health Service since 1902. He was affiliated with practically all important American organizations for public health and civic reform, serving as vice president of the Boston Society of Municipal Officers, 1898-1900, and as president of the Boston Civil Service Reform Association in 1900, of the Massachusetts Civil Service Reform Association in 1901, of the Society of American Bacteriologists in 1900, of the Society of Naturalists in 1901, and of the American Public Health Association in 1914. He was a fellow of the American Academy of Arts and Sciences and vice president of the American Association for the Advancement of Science. He had also been for many years a member of the State Department of Health of Massachusetts. He was the author of a text on "General Biology," on "The Principles of Sanitary Science," and on "The Human Mechanism"; also joint author of "A Short History of Science" and of "The Life and Letters of William Barton Rogers." In April, 1920, he left for England to serve as a member of the faculties of the British Universities of Cambridge and Leeds at which time he was elected a fellow of the Royal Institute of Public Health. Through the death of Professor Sedgwick the United States loses a leader in medical science, a biologist whose prime interests lay in the prevention rather than in the cure of disease. In his last lecture delivered at the centennial celebration of the Medical College of the University of Cincinnati, he closed by saying: "Modern medicine must provide a training for the practice of the public health no less rigorous than that for the practice of medicine; for the public health is the health of the people, and, as the Latin phrase puts it: *Salus populi suprema lex*."

LATIN AMERICA

Personal.—Dr. Francisco Peredo M. has been appointed Mexican consul in Chicago.——Dr. F. Peña Trejo, formerly of the Hookworm Service of El Salvador, has been appointed consul of that country to St. Louis.——Dr. Angel de la Garza Brito, bacteriologist of the Biological Laboratories of Mexico, has been in this country visiting Chicago, St. Louis, Philadelphia and New York.

Anniversary of a Cuban Dispensary.—The November number of *Vida Nueva* is practically devoted to the twentieth anniversary of the foundation of the "Dispensario Tamayo." This institution was created July 10, 1900, when Major-Gen. Leonard Wood was governor of Cuba and Dr. Diego Tamayo secretary of state, to furnish medical and surgical relief to indigent patients. Dr. Israel Castellanos says this dispensary is the "postgraduate school" of young Cuban physicians. Since its foundation the annual number of patients has been from 6,000 to 9,000.

Latin American Training School.—The Training School of Santo Tomas Hospital is the only one of its kind in Latin America. The hospital to which it is attached is the oldest one south of the United States, founded in 1696, shortly after old Panama had been sacked and burned by the pirate Morgan, and the new city had been established in its present location. Some of the buildings of this original hospital still stand and are at present being used as chapel and administration buildings. Few records can be found of the early operations of the hospital until 1865, when it was renovated and reestablished by the Bishop of Panama.

FOREIGN

Jubilee of the Royal Belgian Academy.—The Académie Royale de Belgique is planning to celebrate next year the hundred and fiftieth anniversary of its foundation by Maria Theresa.

Prizes Awarded by the Spanish Academy of Medicine.—Notwithstanding the number of prizes offered by the Academia de Medicina at Madrid, only four seem to have been awarded, according to the notice in the *Siglo Médico*. Two were given for works on neurasthenia, and the two Rubio prizes were conferred on Dr. Gonzalo Rodriguez Lafora for a work on mentally abnormal children, and on Dr. E. Suñer y Ordóñez for his work on "Diseases of Children."

Alleged Cancer Cures.—The *Nederlandsch Tijdschrift* remarks that the "daily papers have again assumed the responsibility of misleading persons with cancer by giving

them the vain hope of recovery from a new method of treatment, and thus deterring them from applying for the only effectual means of treatment yet known. They report that Rollin of Hamburg has discovered a new remedy which has been endorsed by prominent physicians. The *Deutsche medizinische Wochenschrift* has published a protest against this newspaper sensation, saying that Rollin's report of his work was sent to the *Wochenschrift* for publication but on investigation it was declined."

Bubonic Plague at Paris.—The latest issue of the *Bulletins de la Société des hôpitaux* contains six reports on cases of bubonic plague treated at several hospitals. The rapidly fatal septicemia was not recognized at first as necropsy was not allowed, but a case with a slower course finally allowed the formation of the buboes, and confirmed that there has been a mild epidemic of bubonic plague in the heart of Paris between May and October, but it seems now to be virtually terminated. The communication presenting these facts was read *en comité secret*, Oct. 15, 1920, and the *Bulletins* containing these reports and the report of the annual meeting of the society, December 31, reached this office, Feb. 8, 1921.

Deaths in Other Countries

Dr. **S. Giovannini,** one of the leading dermatologists of Italy, member of the medical faculty of the University of Turin, aged 69.——Dr. **M. Oro,** instructor in dermatology at the University of Naples, aged 57.——Dr. **W. Landgraf,** a prominent laryngologist of Berlin, aged 71.

Government Services

Additional Appropriations for Care of War Victims

The Senate on February 8 adopted the amendment recommended by its Committee on Appropriations, authorizing $6,100,000 for the enlargement and improvement of hospitals now being operated by the U. S. Public Health Service at Boston, New York, Perryville, Md., Norfolk, Va., Whipple Barracks, Ariz., Chicago, Lake City, Fla., Atlanta and Louisville. It also appropriated $12,500,000 for five new hospitals for the treatment of tuberculous and neuropsychiatric patients. One of these new hospitals is to be located in the central Atlantic states, one near the Great Lakes, one in the Southwest, one near the Rocky Mountains and one in southern California. To locate and secure sites for these hospitals, there is created a commission consisting of two members from each house, the Surgeon-General of the U. S. Public Health Service, the Supervising Architect of the Treasury and the president of the board of managers of the National Home for Disabled Volunteer Soldiers. Senator Robinson of Arkansas introduced an amendment authorizing an additional appropriation of $12,500,000, saying that at least $35,000,000 was needed and that the amount recommended by the committee was only half enough; his amendment was defeated by a vote of 29 to 25. The bill also authorized the Secretary of the Treasury to take over Fort Mackenzie, Wyo., and Fort Walla Walla, Wash., for hospital purposes. After passage by the Senate the bill will go to conference, but it is practically certain that the House will agree to the Senate amendments.

Interdepartmental Social Hygiene Board

The Senate Committee on Appropriations reported favorably on the Sundry Civil Bill, February 4. Among the amendments introduced by the committee is one providing $340,000 for the Interdepartmental Social Hygiene Board. As previously stated in THE JOURNAL, the board asked for an appropriation of $2,246,924. The House committee struck out the entire amount on the ground that this board was created as a war measure and that the need for it had disappeared. The Senate amendment provides $40,000 for the expenses of the board and $300,000 for "assisting the states in protecting the military and naval forces of the United States against venereal disease." It is provided, however, that "no part of the amount shall be expended in assisting reformatories, detention homes, hospitals or similar institutions in the maintenance of venereally infected persons." The bill will probably pass the Senate in its present form and will then go to conference where the differences between the Senate and House will be adjusted before final passage.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 18, 1920.

The Effects of Medical Education

In an address delivered at the Victoria Infirmary, Glasgow, Sir James Mackenzie returned to his favorite theme. He considered that before the introduction of the laboratory methods of the present day investigation of the patient's symptoms was being perfected. Then this method, which brought to light the great wealth of knowledge of clinical medicine, was suddenly dropped and replaced by the mechanical methods of the laboratory. No doubt our knowledge of a few diseases had thus become more exact; but these concerned only a small portion of the sick in the country, and if we turned to the practice of medicine in the field of the general practitioner, little improvement could be seen in the last forty years. Indeed, there was a loss in their training to use their unaided senses. The conception of medicine which was dominant today actually hampered research. The physician, the surgeon and the general practitioner were more or less at cross purposes. No one recognized the limits of his own sphere or the part his colleague should play. On the one hand, the physician and the surgeon were at a loss when to seek the aid of the bacteriologist, asking him, when it was too late, to solve unsolvable problems. The bacteriologist, impatient at this obtuseness, took on himself the duties of the practitioner, with results too often little to his credit. The result was to render research haphazard and practice ineffective. The idea that laboratory methods were superior to clinical methods had diverted attention from the study of symptoms, and this part of medicine, so essential to practice and research, had actually been checked in its progress. Every general practitioner started his career confident that his teaching and experience had furnished him with competent knowledge for the pursuit of his profession. Before he was long in practice he discovered that he could not recognize the ailments of a great majority of his patients. They presented aspects never presented to him in his hospital training. They looked on this lack of knowledge as personal, not doubting that experienced physicians had long ago solved the problems which baffled them. Only after years did they realize that the knowledge necessary for intelligent practice did not exist. A recent inquiry at St. Andrew's Institute for Clinical Research (described in a previous letter to THE JOURNAL) showed that after putting aside trivial complaints and minor injuries, in only a small number could a diagnosis be made with fair certainty, and in the vast majority it was impossible to state with any degree of accuracy the nature of the patient's complaint. The cases in which the disease could be diagnosed were in the main advanced disease, like consumption, cancer, rheumatoid arthritis, diabetes, apoplexy and chronic Bright's disease. Among the large number whose ailments could not be diagnosed, many were trivial and temporary, but others, though seeming so, were the beginning of diseases which ultimately lead to permanent ill health and death. To all intents and purposes, the teaching of the student was limited to diseases after they damaged the body and produced manifest symptoms. The hospitals where he was trained were filled with patients in the later stages of disease. The only place where he could see the type of disease which would affect the great majority of his patients was in the outpatient department. This was always in charge of the youngest and least experienced members of the staff. If it were borne in mind that the early stages of disease were the most difficult to detect

but the most hopeful for cure, common sense would have said that here is the place for the most experienced physician. Another point overlooked was that the earlier the disease is detected, the easier to perceive the circumstances which favored its occurrence. It was true that the clinical methods which had been employed were somewhat crude, and it was difficult to see how they could be improved. Experienced physicians had gone so far as to say that the kind of knowledge capable of being revealed by the unaided senses was exhausted, and under this mistake had turned to the laboratory worker for help. But so far from being exhausted, the methods of using this knowledge had never been fully understood, and the fact that crude methods revealed so much led to the expectation that by refinement and improvement, with collaboration from the laboratory worker, a great addition would be made to medical knowledge. One valuable set of symptoms revealed by the trained senses could not be detected by mechanical methods. The symptoms at the onset of an illness were mainly subjective—exhaustion, pain, loss of appetite—and could never be detected by any laboratory process.

Taking as an example the work which has made him famous, Sir James Mackenzie said that early in his career he had to give an opinion as to the fitness of persons for life insurance and for working at trades. Some presented heart signs, such as murmurs and irregularities. He thought the matter was a simple one—an abnormal sign being a reason not only for treatment and for rejecting a man for life insurance, but also for forbidding strenuous work. But as years went on he found that people he deemed unfit led strenuous lives with no bad results. He then realized his want of knowledge and searched the books for enlightenment, but to his astonishment could get no help. He then put to himself the question, What are the signs of heart failure? He had to confess that, except in certain forms in which dropsy and dyspnea occurred, he had no idea. Again he turned to the textbooks—clinical, pathologic and physiologic—for a description of the signs of heart failure, and could find none. He then investigated the subject for himself. Among other things he found that the first signs of heart failure were not to be detected in the heart itself, but in the impaired function of organs remote from the heart.

Medical Reciprocity with Belgium Revoked

During the war, one of the many ways in which this country came to the assistance of Belgium was to admit freely to the Medical Register Belgian physicians driven out of their country by the German occupation. They were thus given all the privileges of British physicians, and a large number availed themselves of this hospitality and settled down to practice in England. At the same time, Belgium granted to British physicians the right to practice in its territory. This privilege has now been withdrawn. The British government has therefore withdrawn the privilege granted to Belgian physicians, but without prejudice to the rights of those whose names have been already entered on the Register.

PARIS

(From Our Regular Correspondent)

Jan. 14, 1921.

Partiality Shown by the Grim Reaper, Death

Under this expressive title, M. Hersch, professor of statistics in the University of Geneva, has just published an interesting work based on the statistics of the city of Paris during the three normal years 1911, 1912 and 1913. Hersch divides the twenty wards of Paris into four distinct groups. Group 1 comprises the eighth, ninth and sixteenth wards, which contain the homes of the rich; Group 2 is made of the first, sixth, seventh and seventeenth wards, in which are found the homes of those who are in fairly comfortable circumstances; Group 3 contains Wards 2, 3, 4, 5, 10, 11, 12, 14, 15 and 18, where the poorer classes are housed, and Group 4 is made up of Wards 13, 19 and 20, where abject poverty is the normal condition.

The annual mortality rate per thousand of population in Group 1 (the wards of the rich) was 11.0; in Group 2 (people in moderate circumstances), 13.0; in Group 3 (the wards of the poor), 16.9, and in Group 4 (where poverty reigns), 22.4. The average mortality for the whole city was 16.5. From this statement it will be seen that Group 4, comprising the poorest wards, has a mortality rate that is twice as high as that of Group 1, in which are the homes of the rich.

The percentage of mortality among children of the various groups was:

	Legitimate Children	Illegitimate Children	All Children
Group 1	4.5	7.3	5.1
Group 2	6.2	9.3	6.9
Group 3	9.5	14.7	10.7
Group 4	14.1	18.2	15.1

The child mortality rate is therefore three times as high in Group 4 as in Group 1. The mortality rate of legitimate children is more than three times as high in Group 4 as in Group 1. The mortality rate of illegitimate children in Group 4 is four times as high as that of legitimate children in Group 1.

The annual mortality rate from tuberculosis per 10,000 of population in the various groups was: Group 1, 14.8; Group 2, 26.8; Group 3, 43.1, and Group 4, 58.6. The average rate for the whole city was 39.4. Almost one fourth (23.9 per cent.) of the deaths in Paris are caused by tuberculosis. There are four times as many victims among the very poor as compared with the rich class.

Relations with German Men of Learning

The French Committee of the Second International Congress of Comparative Pathology to be held in Rome in 1921 recently adopted the following resolution:

WHEREAS, French scientists will not be able to accept the invitation to participate in a congress which German scientists have been invited to attend, until the latter shall have proclaimed, by a public act, that they repudiate all connection with the government and the military leaders of Germany in 1914 as regards the antisocial acts committed by these during the war, therefore, be it unanimously

Resolved, That French scientists are under obligations to refrain from attending the Second International Congress of Comparative Pathology if the subjects of the central powers are invited to be present, which decision is in conformity with that arrived at in London, in October, 1918, on the initiative of the Royal Society, and at Brussels, in July, 1919, where a ratification of the decision by the delegates of the academies of the various allied nations was recorded.

Rabies in Paris

Since the war the number of cases of rabies has increased each year in France, and particularly in Paris and in the department of the Seine (THE JOURNAL, Aug. 27, 1920, p. 827). M. H. Martel, general inspector of the veterinary services of the city of Paris, recently reported to the Council of Public Health that the number of cases of rabies had greatly diminished in the last few weeks. During the first three months of 1920, there had been 144 cases; in the second three months, 108; in the third, 47; and in the fourth quarter, up to December 1, there had been only 25 cases in Paris and its suburbs. The epidemic of rabies seems, therefore, to be on the decline. The record of cases for the past four years is: in 1916, 62 cases; in 1917, 56; in 1918, 411; in 1919, 715, and in 1920, 424. If the capture of stray dogs is kept up at the present rate (an average of 2,500 every three months), the rabies will quickly disappear from the capital and the surrounding country.

Diplomas for Sale

The "Oriental University" of Washington, D. C., through the intermediation of its representative in France, has made

an unexpected offer to our dental surgeons; namely, to supply any one interested with the diploma of "doctor of dental surgery (D.D.S.)," stipulating only that the applicant shall furnish a thesis of forty typewritten pages, composed in one of the principal European languages, together with a draft for $140. A diploma of "Doctor of Medicine (M.D.)" is also offered, but these come a little higher, costing $165. The circular of information bears the title: "Promotions de Doctorat par la méthode légale d'équivalence, par correspondance (doctor diploma secured by the legal method of reciprocity by correspondence)."

Personal

At one of its recent sessions, the Academy of Medicine took up the election of a corporate member in the section of operative medicine to fill the vacancy caused by the death of Prof. Felix Guyon. Dr. Pierre Delbet, professor of clinical surgery in the University of Paris, was chosen.

MEXICO CITY

(From Our Regular Correspondent)

Jan. 30, 1921.

Mexican Child Congress

The first Mexican congress on child welfare, already referred to in THE JOURNAL, presented several remarkable features. Among the resolutions adopted were one advocating the establishment of juvenile courts, another recommending the adoption of legislation for the sterilization of criminals and other defectives, and a recommendation that the immigration law be amended in order to promote the immigration of persons belonging to the white race.

Yellow Fever

At the end of the year there was not a single case of yellow fever in Mexico. This may be logically attributed to the decrease of the temperature during that month and the energetic campaign conducted against the epidemic. From June 8, when the disease was first reported, to December 28, cases were reported as follows:

YELLOW FEVER

State of Vera Cruz:	Cases	Deaths
City of Vera Cruz	202	87
Tuxpan	187	97
Papantla	261	30
Other towns	35	21
Total for the State of Vera Cruz	485	235
State of Yucatán:	**Cases**	**Deaths**
Progreso	5	3
Other towns	8	5
Total for State of Yucatán	13	8
State of Tamaulipas:	**Cases**	**Deaths**
Tampico	5	4
State of Campeche:	**Cases**	**Deaths**
Campeche City	1	1
Territory of Quintana Roo	1	?
Total for the whole country	505	249

Public Health Activities

The department of public health has had to control the plague epidemic, which appeared last April in Vera Cruz and disappeared in June. During the last two months, five cases have been reported in the towns called Ceritos and Carbonera. After such success the department is devoting now all its efforts, aside from its plans for campaigns against malaria and hookworm disease, to the preventive campaign which will be undertaken now in order to prevent the reappearance of yellow fever this spring. The cooperation of the Rockefeller Foundation was requested in this work, and the foundation immediately sent a commission, consisting of Dr. Theodore C. Lyster, chairman, and Drs. Bert W. Caldwell and M. E. Connor. After their arrival and in accordance with President Obregon's orders, there was formed an international commission, which will have charge of the campaign against yellow fever, continuing at its task until the disease is finally eradicated. Because of Dr. Lyster's scientific accomplishments, he was appointed president of the commission, in which he will represent personally Dr. Malda, head of the Mexican department of public health. Dr. B. Vasconcelos will act as vice president, and the other members will be Drs. Enrique Osornio, head of the sanitary service of the war department, Dr. F. Castillo Nájera, and Drs. Connor, Caldwell and E. J. Vaughn. As Dr. Lyster's data indicate that the endemic focus of yellow fever is in Yucatán, he has departed for that state to investigate conditions there; as he also thinks the brilliant success obtained at Guayaquil was largely due to the use of larvicide fish, Dr. Caldwell has left for Vera Cruz and Tuxpan and Dr. Connor for Mérida, where they will use fish on a large scale for the destruction of mosquitoes, without giving up, however, the other measures so far employed apparently with good results and also used successfully in Cuba, Panama, Brazil and other countries. At Tampico, which, although in continuous communication with Tuxpan, has been practically free from the disease, no special work will for the time being be done by the international commission, both for the foregoing reason and also because for a long time there have been there breeding places for larvicide fish. Besides the good results that are expected from the work of this commission, it also marks the beginning of a new epoch in international relations between our two countries, and it is one more step toward cementing the bonds which unite them.

MADRID

(From Our Regular Correspondent)

Jan. 5, 1921.

New Building for the School of Medicine

The king, accompanied by the secretary of education, Dr. S. Recasens, dean of the school of medicine, and Dr. Florestán Aguilar, dean of the school of odontology, inspected carefully the site for the new school of medicine and the clinical hospital, which will be connected with it. The matter is one in which the king is greatly interested. The first appropriation of 600,000 pesetas (about $81,000) will permit the beginning of the excavation and foundation work. The ground measures 82,000 square meters and occupies a high place with a wonderful view from the Guadarrama Mountains to Madrid itself. It is hoped that when the medical school changes its quarters, it will also change its present spirit and will gain new courage to defend itself against impositions of ministers, so far as the granting of chairs is concerned.

Lung Surgery

Dr. Pierre Duval, professor of surgery of the School of Medicine of Paris, so well known through his brilliant success in thousands of operations, delivered a lecture before the National Academy of Medicine of Madrid. He explained with French clarity the present status of lung surgery as a result of the war. It is well known that before the war, surgeons were always afraid of causing pneumothorax. In order to prevent this they limited the operative field, and adhesions were produced that limited it still more. French surgeons—although, as Duval admitted, American physiologists had preceded them—convinced themselves that pneumothorax was not, as often stated, fatal and that it could be induced without danger to the patient since the blood pressure, which hardly rose a couple of units according to Potain's sphygmomanometer, went back at once to its former figures. Pneumothorax is therefore purposely induced, allowing air to come in very slowly. The lung retracts, and

after the resection of one rib extensively—Duval thinks the resection of several ribs should be given up—such a wide field is obtained that Duval has been able to bring out in succession the three lobes of a lung, examine them carefully, and operate on them as indicated. Pieces of lung have been resected and sutured afterward, regardless of the extension of the resection. There have been some cases in which a whole lobe has been removed and the patient recovered. In some cases the bronchi of a lobe have been caught in the suture, but the patient has gone back to his usual routine in a few days. After the portion resected has been sutured, the pleura is sutured to isolate it from the lung parenchyma, some grams of antiperfringens serum are placed in the pleural cavity, and the wound is closed without any drainage. In a few days the air causing the pneumothorax is taken out and the patient is discharged.

Duval remarked that the mortality in lung wounds before this technic was nearly 80 per cent., owing to primary hemorrrhages, secondary hemorrhages and infection, pleurisy and bronchopneumonia. After the application of these principles, the mortality has been reduced to 6 per cent.

The conference, which was unusually well attended, was received with much approval and applause. Duval has made an excellent impression here, on account both of his surgical ability and of his modesty. To show his appreciation of the many demonstrations on his behalf, he has held clinics in the Hospital General, the Hospital del Niño Jesús and at the Instituto Rubio.

BERLIN

(From Our Regular Correspondent)

Jan. 10, 1921.

Recent Experimental Investigations on Syphilis

Before the Berlin Medical Society, Geheimrat von Wassermann reported recently the results of his latest experimental investigations on syphilis. He had conceived of the serum reaction in syphilis as a special type of the so-called deviation of complement, as introduced into blood diagnosis by Bordet and Gengou, which permits the diagnosis of most infectious diseases if the causative agent of the disease (antigen) is brought in contact with the blood serum of the patient or suspected subject (antibody) under given conditions. In the case of diseases whose causative agents are known or easily isolated, other simpler methods are found more practical. But that is not true of syphilis; for while, to be sure, the causative agent of syphilis has been isolated by Schaudinn and by Hoffmann (1905), this has been accomplished in only extremely rare cases, and for the most part only in the initial stages of the disease. But in view of the chronic and often capricious course taken by syphilis, it is especially desirable to be able to diagnose unequivocally the late stages and manifold developments of the disease. Heretofore, this has been possible only by means of the Wassermann test and similar serologic procedures. Herein likewise lies the great practical importance of the Wassermann test. Now Wassermann, and not only he but also all other observers, believed originally that the Wassermann reaction did not take place unless the spirochetes of syphilis, or syphilitic organs containing large numbers of the causative agent, were used as antigens; the spirochetes being hard to cultivate, watery or alcoholic extracts from syphilitic organs were used in performing the Wassermann test. Very soon, however, it became evident that extracts of syphilitic organs were not at all essential, as the reaction is brought about just as readily when alcoholic extracts of the heart or liver of guinea-pigs, rabbits, cattle, etc., are used; that is to say, a substance having nothing to do with syphilis. Thus, the theoretical foundation of the reaction was shaken. Since then, much controversy has been waged in regard to the correct interpretation of the reaction, without affecting in any way the practical value of the Wassermann test. Even though it could not be demonstrated how the reaction came about, it was found that a positive reaction was securable in 90 per cent. of all cases of syphilis, this being true not only in frank cases but also in those in which a medical diagnosis presented the greatest difficulties; thus, its practical value was still maintained.

It is at this point that the recent investigations of Wassermann strike in and have served to clear up the vexatious question. His investigations were interrupted by the war, but were taken up again after its close. In these investigations Wassermann started with the simple idea that the blood serums of syphilitics that behave constantly different from the blood serums of healthy subjects must necessarily contain some substance not found in the latter. He did not enter into the chemicophysical aspects of the problem, which of late have become very popular in biology, though without producing any tangible results. By means of carefully planned experiments Wassermann has been able to demonstrate in the serum of syphilitics a substance that, in the presence of the so-called complement, enters into a reversible combination with the extract used in the Wassermann test. The extract does not consist of the disease-producing spirochetes or other protein material, but of alcohol-soluble, fatlike substances (lipoids), which are derived from just ordinary animal organs. In other words, this substance that now for the first time has been isolated from the serum of syphilitics is produced by the lipoid substance which must be present in large quantities in the blood of the patients. Thus, Wassermann was able to prove a point heretofore unknown to students of immunology; namely, that not only protein substances but also lipoids may produce genuine antibodies; and secondly, he was able thereby to explain why the antibodies that the Wassermann reaction showed to be present in syphilitics were not directed against spirochetes but against definite lipoid substances that, under the influence of these causative agents, undergo a rapid increase in the human body. The syphilitic suffers from an inversion (Umstellung) of lipoid metabolism, which explains why the Wassermann reaction is positive not only with extracts from the organs of all stillborn syphilitic children, but also with all organ extracts containing lipoid-like substances.

In the course of his remarks, Wassermann also gave expression to some of his views on the therapeutic aspects of syphilis. He called attention to the circumstance that one remedy that has been used for centuries against syphilis, namely, mercury, is effective mainly because it acts on the cells that have been changed by the poison of the disease process and also on the inversion of lipoid metabolism. In this respect, it constitutes, as it were, an antithesis to the arsenic preparations of Ehrlich, which exert a spirillicidal effect. The combination of mercury and arsenic therefore constitutes a treatment for syphilis that rests on a solid etiologic foundation and is in accordance with the common line of practice.

Death of Leopold Landau

Prof. Leopold Landau died suddenly, Dec. 28, 1920, following a stroke of apoplexy, at the age of 72 years. In 1872 he became assistant under Spiegelberg in the Universitätsklinik für Geburtshilfe und Frauenheilkunde at the University of Breslau. In 1874 he became privat-docent in his chosen specialty. In 1876 he removed to Berlin, where he shortly afterward became ordinarius and in 1906 "Geheimer Medizinalrat." Landau's private clinic in Philipp Street was for many decades regarded as a model institution, and was sought out by many physicians and students not only of this country but also of foreign lands. The department of pathologic anatomy, which he established in connection, stood also

in high favor. Landau was a man of many ideas and possessed a remarkable knowledge of operative technic, the fruit of which was numerous operative methods. He wrote a large number of scientific works. We may mention more particularly his works on inflammatory processes in the female pelvis and their operative treatment by way of the vagina, the coincidence of pregnancy with uterine tumors, the surgical removal of the uterus, the treatment of fistulas of the vagina, floating kidney, and operation in gonorrhea of the upper genital tract. At the same time, he devoted no small part of his time and energy to the securing of legislation favorable to the medical profession. In 1894 the Berlin Medical Society elected him a member of the board of directors, and up to the end of 1919 he served as acting president. The erection of the Langenbeck-Virchow building, the headquarters of the Berlin Medical Society and of the German Surgical Association, is an outgrowth of his initiative. In recognition of his services the Berlin Medical Society in 1918 made him an honorary member. For many years Landau took a prominent place in Berlin community life. Since 1901 he had been city councilman, in which capacity he had exerted great influence in questions pertaining to the municipal public health service. It was mainly due to his agitation that the department for infectious diseases was added to the Friedrichshain Hospital and the department for venereal diseases to the Rudolf Virchow Hospital. He was also active in securing the municipal "Medizinalamt."

BUDAPEST

(From Our Regular Correspondent)

Jan. 22, 1921.

The Effect of the War on Sanitary Knowledge

In a lecture delivered before the Nagyvarad Medical Society in December, Dr. Popovici said that the war had contributed greatly to the spread of sanitary knowledge. The Austro-Hungarian army consisted in part of men up to 55 years of age, many among them illiterate, who had never before sought medical aid but had dosed themselves with herbs—as recommended by the village smith or barber, or by old women. When presenting themselves for service they were compelled to undergo a physical examination. If they complained of some malady while on duty they were sent to military hospitals where they were subjected to special examinations by oculists, roentgenologists and other experts. Sputum, urine and blood analyses were made in the laboratories. When they entered on their military service the men were first inoculated against typhoid fever, smallpox and other contagious diseases. In the course of these examinations some became aware that a certain hoarseness which had been attributed to a cold was really due to syphilis, and they received ample proof that on proper treatment the hoarseness and the swollen cervical and inguinal glands disappeared. They also learned that decayed teeth can be saved by proper dental treatment and that the absence of serviceable teeth leads to digestive troubles, which can be avoided by prosthetic appliances. Knowing that illness involved temporary absence from active service, they were quick to present themselves for medical inspection. This taught them that early medical aid often wards off a long illness and that the advice of a physician is of more value than the kilogram of herbs recommended by an old woman or by a quack.

These soldiers, while home on furlough, naturally imparted to their neighbors their newly acquired knowledge about the prevention and treatment of disease. Relatives suffering from a chronic disease were advised to go to town and have themselves examined with the curious rays by which the doctor can see their innermost organs, "even their blood vessels." Persons suspected of having syphilis were told to seek a laboratory where the proper blood test could be carried out. In consequence of the spread of these ideas in the mountain villages, peasants who formerly never applied for medical advice now call on the roentgenologists for chest and other examinations, and many are presenting themselves for inoculation against typhoid fever, especially in cases in which a fatality from typhoid has been reported among the neighbors. Such precautions were unknown before the war. As a matter of fact, the village doctor had to be very eloquent to persuade the peasants to have the children vaccinated against smallpox; now they have this done voluntarily. Thus the cause of hygiene has made great strides through the war, by the dissemination of ideas brought home by the men who served in the army, and as almost every man had some contact with military service, these ideas have penetrated into almost every household.

Sickness as the Greatest Luxury

The prices of drugs in Hungary have risen so exorbitantly that sudden illness represents a real financial catastrophe to a family of the middle class, while for a government official or a clerk with a fixed income, medical attention for serious disease is an unpurchasable luxury. In the last two months the price of drugs has increased 100 per cent., and this month a further rise of 100 per cent. may be expected. This factor has many pitiable consequences on the public welfare. People who once belonged to the upper classes cannot call a physician because they are now unable to pay for the costly drugs. For instance, an old official of the law court, who has an advanced case of arteriosclerosis, would have to pay from 150 to 200 crowns weekly for his iodin and hexamethylenamin requirements. As his monthly pay amounts to only 2,500 crowns (equivalent to $500 at normal exchange) it is evident that he cannot divert 800 crowns a month from his family, and for this reason he neglects all treatment. The chief cause of the exorbitant prices is found in the extremely low exchange value of the Hungarian currency. While one dollar was worth 5 crowns before the war it is now worth 500 crowns, that is, the crown has dropped as low as 1 per cent. of its normal exchange value. And as all the countries of eastern Europe use imported drugs, the druggist must pay in foreign currency which is at an extremely high premium. Even the German rate stands at 9 crowns to the mark. The German chemical manufacturers are continually raising the prices. About the middle of September a kilogram of potassium iodid cost 300 marks; today the same quantity costs 512 marks, and meanwhile the value of the mark has risen. The price of quinin has increased from 8,000 crowns to 15,000 crowns, and of acetylsalicylic acid from 17 crowns to 48 crowns. The iodin and bromin salts are the most expensive. Certain drugs are very scarce, as for instance, arsphenamin, which is being smuggled into Russia in vast quantities. Arsphenamin can be imported only from Germany, and it is probable that even there the manufacture has greatly decreased.

If the prevailing conditions continue, medical practice will shrink to such an extent that physicians will have to seek other fields to make their livelihood.

Marriages

CLARENCE JAMES BUCKLEY, Akron, Ohio, to Miss Mabel Ernestine Knapp of Lodi, Ohio, October 8.

WALTON MARTIN to Mrs. Charlotte Hunnewell Sorchan, both of New York, January 28.

CHARLES R. FOX to Miss Helen M. Behringer, both of Northampton, Pa., recently.

WALTMAN WALTERS to Miss Pheobe Mayo, both of Rochester, Minn., February 5.

HAROLD FRANKLIN TAYLOR, Burlington, Vt., to Miss Jane Ashland, December 28.

Deaths

Hugh A. McCallum, London, Ont.; Western University, London, Ont., 1886; University of Toronto, Ont., 1887; L. R. C. P., London, 1900; dean of the faculty of medicine, and professor of medicine in Western University, London, Ont.; president of the Canadian Medical Association in 1914; an honorary member of the Summit County (Ohio) Medical Association; died, January 25, from pneumonia.

George Douglass Hayes ● Tracy City, Tenn.; University of Tennessee, Nashville, 1889; aged 52; superintendent of the Cumberland Mountain Sanitarium; local surgeon of the North Carolina and St. Louis Railroad; secretary of the Grundy County Medical Society; died, January 19, from pneumonia.

Hampson Hubert Biedler ● Baltimore, Md.; University of Maryland, Baltimore, 1876; aged 66; at one time professor of diseases of women and of surgery in the Baltimore Medical College; dean and professor of surgery in the Baltimore University from 1897 to 1905; died, January 23, from paralysis.

George Thomas Stevens ● New York; Castleton (Vt.) Medical College, 1857; aged 88; a veteran of the Civil War; at one time professor of physiology and diseases of the eye in Union University; author of a treatise on "Functional Diseases of the Nervous System"; died, January 30.

James H. Brownfield, Fairmont, W. Va.; Jefferson Medical College, Philadelphia, 1878; aged 84; a charter member of the West Virginia State Medical Association; surgeon of the Fourteenth West Virginia Infantry during the Civil War; at one time mayor of Fairmont; died, January 19.

Jeremiah Donovan ● Milwaukee, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1904; aged 55; instructor in proctology in Marquette University School of Medicine; chief of staff of the Milwaukee Maternity and General Hospital; died, January 25.

Edward Henry Bushnell ● Quincy, Mass.; University of Vermont, Burlington, 1889; aged 56; captain, M. C., U. S. Army, and discharged, April 11, 1919; president of the Norfolk Southern District Medical Society; died, February 4, from heart disease.

Burr Burton Mosher ● Brooklyn; Long Island College Hospital, Brooklyn, 1890; aged 54; one of the founders and surgeon-in-chief of St. Giles Hospital for Cripples; died, January 31, from the effects of injuries received in an automobile accident.

Henry Harrington Janeway ● New York; College of Physicians and Surgeons in the City of New York, 1898; aged 47; a member of the American Society for Cancer Research; attending surgeon to the Memorial Hospital; died, February 1.

Alfred Wells Abbott, Laconia, N. H.; Dartmouth Medical School, Hanover, N. H., 1868; aged 78; a member of the New Hampshire Medical Society; secretary of the Laconia County Medical Society; died, January 23.

Arch Edwin Pope, Denver; Ensworth Medical College, St. Joseph, Mo., 1911, Tufts Medical College, Boston, 1912; aged 39; a member of the Missouri State Medical Association; died, January 20, from pneumonia.

Myron Alanson Patterson, Port Huron, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1891; aged 54; at one time health officer of Flint, Mich.; died, Oct. 18, 1920, from heart disease.

Joses B. S. Holmes, Lakeland, Fla.; Atlanta (Ga.) Medical College, 1871, Jefferson Medical College, Philadelphia, 1877; aged 68; a member of the Southern Surgical and Gynecologic Association; died, January 19.

Thomas H. MacKenzie ● Trenton, N. J.; Harvard University Medical School, Boston, 1871; aged 73; a member of the medical staff of St. Francis' Hospital, Trenton; died, Oct. 19, 1920, from heart disease.

Raymond F. Goeringer, Wilkes-Barre, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1920; aged 24; an intern in the Hahnemann Hospital, Scranton; died, about January 16.

Frank Johnson Thornton, Raleigh, N. C.; Leonard Medical School, Raleigh, 1908; aged 36; lieutenant, M. C., U. S. Army, during the World War; a colored practitioner; died, January 13.

● Indicates "Fellow" of the American Medical Association.

William Drexler, Denver, Gross Medical College, Denver, 1909; aged 45; a member of the Colorado State Medical Society; died, Dec. 22, 1920, following an operation for gallstones.

William James Guinan, Marysville, Calif.; University of Vermont, Burlington, 1900; health officer of Marysville and physician of Yuba County; died, January 23, from uremia.

James Merton Day ● Lansing, Mich.; Starling Medical College, Columbus, 1902; aged 45; captain, M. C., U. S. Army, during the World War; died, January 21, from heart disease.

James Bertrand McAvoy, Bethlehem, Pa.; Medico-Chirurgical College of Philadelphia, 1907; aged 35; lieutenant, M. C., U. S. Army, and discharged, March 7, 1919; died, January 25.

Arthur Hopkins Rice, Starkville, Miss.; Medical College of Alabama, Mobile, 1873, College of Physicians and Surgeons in the City of New York, 1874; aged 68; died, January 14.

William Millen McGalliard, Donaldsonville, La.; New Orleans School of Medicine, 1866; aged 82; a veteran of the Civil War; died, January 26, from cerebral hemorrhage.

Noble Winfield Scott, Huntington, Ind.; Cincinnati College of Medicine and Surgery, 1866; aged 80; a member of the Indiana State Medical Association; died, January 20.

Rudolf C. Teschan ● Milwaukee, Wis.; Michigan College of Medicine, Detroit, 1882; aged 68; at one time a member of the Milwaukee school board; died, February 1.

Hudson Morton Roberts, Herkimer, N. Y.; University of Buffalo, N. Y., 1892; aged 59; a member of the Medical Society of the State of New York; died, January 15.

George W. Ellison, Townville, Pa.; Cleveland Homeopathic Medical College, 1899; a member of the Medical Society of the State of Pennsylvania; died, January 20.

Thomas G. Binkley, Sinking Spring, Pa.; Jefferson Medical College, 1888; aged 56; was instantly killed, January 24, when his automobile was struck by a train.

Pink P. Crowe, Dora, Ala.; Vanderbilt University, Nashville, Tenn., 1882; a member of the Medical Association of the State of Alabama; died, Dec. 26, 1920.

Mathew Marshall, Pittsburgh; University of Pittsburgh, 1920; aged 27; an intern in the Western Pennsylvania Hospital, Pittsburgh; died, January 24.

William Royster, Turnersville, Tenn. (license, 1908); aged 41; a member of the Tennessee State Medical Association; died at Nashville, January 21.

William A. L. Riegel, Philadelphia; College of Physicians and Surgeons, Baltimore, 1884; aged 59; died, January 22, from cerebral hemorrhage.

William F. Laney, Lancaster, S. C.; Medical College of Virginia, Richmond, 1897; aged 44; died, Nov. 27, 1920, from cerebral hemorrhage.

William B. Jones, Millsboro, Del.; Jefferson Medical College, Philadelphia, 1887; aged 58; died, January 24, from heart disease.

Robert W. Harmon, Lauderdale, Miss.; University of Alabama, Mobile, 1899; aged 47; died, January 26, from heart disease.

Frederick Elmer Colony, Evansville, Wis.; Rush Medical College, 1891; aged 55; died at Madison, Wis., January 18.

Anders Gustavus Emilus Nordlander, Boulder, Colo.; University of Louisville, Ky., 1902; aged 60; died, recently.

William Hinton Miller, Oakland, Calif.; College of Physicians and Surgeons, Chicago, 1886; died, January 17.

John Q. Wrenn, Placerville, Calif.; Medical College of Ohio, Cincinnati, 1876; aged 76; died, January 16.

William F. Gibson, Livingston, Texas; Tulane University, New Orleans, 1882; aged 71; died, January 14.

William Mervin Bonnet, Denver; University of Michigan, Ann Arbor, 1874; aged 69; died, January 14.

James Thompson, Ewing, Ky.; Louisville (Ky.) Medical College, 1884; aged 86; died, January 20.

John G. Elder, Clermont, Ga.; University of Georgia, Augusta, 1896; aged 54; died, January 11.

LeRoy D. Munson, Cleveland; Columbus Medical College, 1894; aged 64; died, about January 17.

Henry L. Davenport, Guthrie, Ky.; University of Louisville, Ky., 1886; died, about January 10.

Hiram Hopkins, Yorkville, Ill.; Rush Medical College, 1885; died at Elgin, Ill., January 16.

John J. Solomon, Omaha (license, Nebraska, 1891); aged 77; died, January 10.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE WILLIAM F. KOCH CANCER REMEDY

A number of inquiries have been received of which those that follow are typical. This from a Philadelphia physician:

"Would you give me any information you have about one so-called 'Dr. W. S. Koch,' Detroit, Michigan. This man is said to claim to have in his possession a cure for cancer, the nature of which I do not know. I know, however, that he obtained a very large fee not very long ago in treating a case but without success . . ."

While a Chicago physician writes:

"I have at hand a pamphlet from Wm. F. Koch, M.D., Ph.D., of Detroit, Mich., which is supposed to be a reprint from the *Medical Record* of Oct. 30, 1920, entitled 'A New and Successful Diagnosis and Treatment of Cancer.' Will you kindly advise me what you know about this man's work on this subject and how much stock I can put in the claims he makes in this article?"

And this from a physician in Seattle, received a few days ago:

"Has your office any knowledge of the cancer cure devised by Dr. William F. Koch, Ph.D., M.D., of Detroit? He published an article on it in the *Medical Record*, Oct. 30, 1920. . . . I enclose copy of letter received by one of our patients from his 'western representative' which reads like pure quackery. I do not find Dr. Koch's name in either the A. M. A. or Polk's Medical Directories."

The letter referred to in the last inquiry as coming from Dr. Koch's "western representative" was addressed to a woman who had written to Dr. Koch with reference to his alleged cancer cure. The letter, dated Jan. 19, 1921, was signed "Chas. L. Tisdale, 1898 Geary Street, San Francisco." It read:

"*Dear Madam*:—Your letter of January 10th written to Dr. Koch of Detroit in reference to his cancer cure has been sent to me by Dr. Koch. I am the Western representative of Dr. Koch and am giving the treatments with his remedy. I am now treating 14 cases here with some most wonderful results. The amount of the remedy that Dr. Koch can supply me with is limited and it is a very expensive substance. None of it can be sent to Seattle or any other place for I have only enough to treat the cases that are constantly presenting themselves here. If you could come to San Francisco and have the money to pay a reasonable fee, say enough to pay for the remedy, I would be very glad to do everything I can for you.

"The results that have already shown in many of these cases warrant me in believing that almost any case of cancer can be cured if the treatment is persisted in.

According to our records, Dr. William F. Koch of Detroit was born in 1885. Some years ago he graduated in chemistry and for some time held the position of Professor of Physiology and Physiologic Chemistry at the Detroit College of Medicine and Surgery. In 1918 Dr. Koch received his degree in medicine from this same college. Less than a year after his graduation Dr. Koch declared that he had "developed a real specific cure for cancer." In the *Detroit Medical Journal* for July, 1919, there appeared a brief article by William F. Koch entitled "A New and Successful Treatment and Diagnosis of Cancer." A more extensive article bearing the same title was published in the New York *Medical Journal* of Oct. 30, 1920.

As a result of the publicity that was given the Koch treatment, the Wayne County (Detroit) Medical Society appointed a committee to investigate the treatment. Its first report appeared in the society's *Bulletin* for Dec. 22, 1919. Briefly this report said in effect that the Board of Health of Detroit had placed at the disposal of the committee twelve beds in a local hospital with the necessary special nurses and everything else required free of charge. The committee sent certain patients to the hospital and there were also some other patients recommended by different physicians as proper cases for treatment. There were nine altogether. After going over the cases carefully the committee found some in which the diagnosis was doubtful. There were five cases, however, of undoubted cancer, a positive diagnosis having been made from specimens and microscopic examination. The management and treatment of these patients were turned over to Dr. Koch.

Dr. Koch seems to have raised certain objections and to have made certain criticisms. He also insisted that he ought to have some representative on the committee. The committee offered to put on any and all he would name. He failed to name any. The committee reported further that Dr. Koch was very negligent in his treatment of the patients and finally, on November 26, the committee met with Koch and went over all the cases with him. At that time he gave the patients injections and promised to attend to the treatment regularly in the future. According to the report, he saw the patients only once more (three days later) and then did not come near them again. As the patients became disgusted with the neglect some of them left and the committee sent the rest home and closed its connections with the investigation of the subject.

In the same issue of the county society *Bulletin* in which this committee's report was published, the editor of the *Bulletin* stated that from all sections of the country inquiries were coming relative to the treatment and "from long distances patients are coming to Detroit to be 'cured' of cancer." The editor further stated: "It is reported that Dr. Koch is treating many patients promising much and charging well." To this Dr. Koch retorted that only about 30 per cent. of his patients had "contributed." The balance were treated free.

The Wayne County Medical Society *Bulletin* for Jan. 5, 1920, was devoted almost exclusively to another discussion of Dr. Koch's "cancer cure." It was there stated that a second committee had been appointed to gather what information could be obtained from outside sources relative to cases treated by Dr. Koch. This committee reported that of fifty-six cases of which it was able to obtain data, only three of the patients showed clinical improvement; twenty-one of the patients were dead. Three other patients treated both by the Koch injection and by operation were reported as clinically improved. The condition of eighteen of the patients was reported as stationary, or unimproved. In eleven of the cases the results were unknown but the surgeons reported unfavorably.

The committee reported further that Dr. Koch's records were incomplete and that he had submitted no proof that his injections have any particular merit and the committee concluded that the study "is entirely experimental and improperly supervised."

Evidently, the most that can be said of Dr. Koch's alleged "cure" for cancer is that the claims made for it have not been supported by independent investigators.

Correspondence

PERTUSSIS VACCINE

To the Editor:—While one may assume that THE JOURNAL would select one eminently able to discuss each particular phase of "Biologic Therapy," it seems permissible to ask Dr. Davison for the statistics on which he bases his statement that "the more careful studies show that pertussis vaccine has practically no therapeutic value" (THE JOURNAL, Jan. 22, 1921, p. 242). Such has not been true in our small experience; but if the prevailing larger experience does not justify the use of these vaccines, they should not be continued in spite of favorable results attained. On the other hand, is it not generally recognized that no one is yet able to speak arbitrarily about the use of many of the vaccines; also that perhaps neither group of the investigators quoted would conform to every postulate laid down by the Special Committee of the American Public Health Association? Even modern medicine is not an exact science.

PAUL W. VAN METRE, M.D., Rockwell City, Iowa.

To the Editor:—May I draw your attention to an error in the article on "Pertussis Vaccine" in which it is stated that

the vaccines "should be used within *four* months of the date of manufacture." There is no authority, so far as I know, for such an assertion. No vaccine of any kind has ever been recommended for use when older than three months. In the case of pertussis vaccine there is direct evidence to the effect that even a three month vaccine is not fully potent. Huenekens has shown that pertussis vaccine two to three months old immunizes only 12 per cent. of the cases; while freshly prepared vaccine (less than one week old) confers immunity in from 94 to 100 per cent. of cases.

It is unfortunate that the author of the article, contrary to the usual practice followed by the other writers of the biologic therapy series, did not deem it expedient to quote the authorities on which he based his ultrapessimistic conclusions. The only name mentioned, that of Bordet, has no bearing on the subject, as he experimented with a *serum* and not with a vaccine. One might as well condemn typhoid vaccine because antityphoid serum had not come up to expectations.

Failures to obtain results with pertussis vaccine are due to: (1) old, inert vaccines; (2) intramuscular, instead of subcutaneous administrations, and (3) insufficient dosage.

PAUL LUTTINGER, M.D., New York.

[NOTE.—The foregoing letters were referred to DR. WILBURT C. DAVISON, Baltimore, writer of the article on "Pertussis Vaccine," for reply. The importance of the subject discussed warrants giving the reply more space than is usual. These communications will be reprinted in pamphlet form, together with the bibliography referred to by Dr. Davison. The pamphlet will be sent together with that containing the series on biologic therapy on receipt of twenty-five cents.—ED.]

Dr. Paul Luttinger and Dr. Paul W. Van Metre, in commenting on my lack of enthusiasm for prophylactic and therapeutic inoculations with pertussis vaccines (THE JOURNAL, Jan. 22, 1921, p. 242) regret the omission of the list of authorities on which my "ultrapessimistic conclusions" were based. I sent in a bibliography of more than eighty references, five of which were to Dr. Luttinger's work, with my article, but its length precluded its publication. I am appending another list to this letter and shall send copies to Dr. Luttinger and Dr. Van Metre.

Dr. Luttinger, in criticizing my statement that pertussis vaccines "should be used within four months of the date of manufacture," writes that *"No vaccine of any kind* has ever been recommended for use older than three months." The point I intended to convey was that if any one desired to use pertussis vaccines, they were as efficacious within four months of the date of manufacture as at any other time. In the majority of the favorable reports on the value of prophylactic and therapeutic inoculations with pertussis vaccines, stock commercial preparations of the Bordet-Gengou bacillus, as well as mixtures with other organisms, of various ages were all recommended as efficacious. It is, of course, conceivable that had fresh vaccines been used, these reports might have been even more enthusiastic. I judge that Dr. Luttinger referred only to pertussis vaccines in his statement of "no vaccine of any kind," for of course typhoid and other vaccines are recommended as reliable and also found to be reliable even when they are older than four months. It is difficult to estimate the age of the pertussis vaccines Dr. Luttinger employed, for he states (THE JOURNAL, May 19, 1917, p. 1461) that "it is equally regrettable that no minute comparative study of the various vaccines supplied to the clinic could be made, . . . but that all of the pertussis vaccines used, except old strains or old suspensions of new strains of pertussis bacilli, seemed to be equally potent. . . . This is merely an impression, as I have no reliable figures on the subject. . . . The results of an influenza vaccine collated by one of our workers are said to be equally good."

Huenekens did not prove "that pertussis vaccine, from two to three months old, immunized only 12.5 per cent. of the cases." He merely found evidence (*Am. J. Dis. Child.* **16**:30 [July] 1918) of complement fixation in only one of a total of eight individuals (12.5 per cent.) inoculated with pertussis vaccines of from two to three months of age, while in eighteen of a total of nineteen children (94 per cent.) receiving fresh vaccines, the reaction became positive. Huenekens, however, stated that his older vaccines were thinner and had probably autolyzed. This might explain his results, which are so contradictory to the fact that vaccines of other organisms like *B. typhosus*, even though several months of age, produce antibodies in man. In an earlier article (*Am. J. Dis. Child.* **14**:283 [Oct.] 1917), Huenekens found that one of the four children (25 per cent.) inoculated with commercial vaccines developed a positive complement fixation reaction, while in three of five receiving fresh vaccines the reaction became positive. This small series suggests that fresh vaccines are more efficacious than older stock vaccines in producing complement fixation bodies for the Bordet-Gengou bacillus. The absence of a complement fixation reaction, however, is not reliable evidence of a lack of immunity. Dr. Luttinger (*New York M. J.* **101**:1043, 1915) states that "the complement fixation test, notwithstanding statements to the contrary, has not proved, so far, to be of any practical value in the diagnosis of pertussis for therapeutic indications."

Olmstead and Luttinger (*Arch. Int. Med.* **16**:67 [July] 1915) found that "about 40 per cent. of whooping cough cases have given a positive reaction (complement fixation) with antigens of the Bordet-Gengou bacillus when inactive serum was used. . . . The highest percentage of positives is given by convalescent *vaccinated* cases. . . . Active serum may give nonspecific positive reactions." Some investigators have failed to find any evidence of complement fixation in the serum of pertussis patients. Dr. Luttinger found (*Am. J. Dis. Child.* **12**:290 [Sept.] 1916) only eighteen children among 9,400 who recovered from the disease, with an apparent second attack of pertussis (with a typical whoop). Obviously, then, the complement fixation reaction does not appear to be an index of immunity, since in only 40 per cent. of Olmstead's and Luttinger's cases was it positive, while over 99 per cent. of the latter's patients failed to have a second attack of the disease.

It is difficult to correlate Hueneken's statement (*Am. J. Dis. Child.* **16**:30 [July] 1918) that "pertussis vaccines from two to three months old employed in very large doses, one billion and over, immunize in only 12.5 per cent. of the cases" with the reports that the natural immunity of children to pertussis appears to range from 24 to 58 per cent. Dr. Luttinger stated (*Am. J. Dis. Child.* **12**:290 [Sept.] 1916) that in 29.3 per cent. of the families he investigated "there were one or more children of susceptible age who failed to contract the disease." Although Dr. Luttinger subsequently eliminated many of these children because they had had "mild coughs" or "vomiting spells," he concluded that "there seems to be a certain indefinite percentage who do not contract the disease or who do not show any symptoms of it."

Hess reported (THE JOURNAL, Sept. 19, 1914, p. 1007) that 26 per cent. of eighty unvaccinated children exposed to whooping cough did not develop the disease and were presumably naturally immune. As 92 per cent. of 244 children he inoculated with pertussis vaccine failed to contract pertussis after exposure, Hess concluded that "pertussis vaccine has protective value in a certain percentage of cases," although "we cannot compare its protective value to that of typhoid vaccine." Hess used stock commercial preparations as well as fresh and autogenous vaccines, and yet obtained a percentage of immunity practically as high as the percentage of positive complement fixation reactions Huenekens reported with fresh

vaccine. Hess also stated that "none of the four vaccines, including an autogenous strain, was of value in curing or tempering the disease in the epidemic in our institution."

Von Sholly, Blum and Smith (The Journal, May 19, 1917, p. 1451) report that "of 267 children exposed to whooping cough in the families which showed partial immunity and not vaccinated against it, 155 (58 per cent.) did not contract it. . . . Altogether, of 700 exposed children in 243 of our families, 174, or 24.8 per cent., escaped the disease. . . . Of 243 families the children of which were exposed to whooping cough, seventy-seven families (31.6 per cent.) exhibited an immunity in some of the children. . . . In the light of these natural immunes, can we be sure that pertussis vaccine conferred immunity, especially since, according to our statistics, influenza vaccine apparently can do the same?"

Bordet and Gengou (*Ann. de l'Inst. Pasteur* **20**:731, 1906), in addition to studying the effect of antiendotoxic serums, also experimented with pertussis vaccine and stated that the latter was harmless and that it does not provoke any unpleasant symptom ("ne provoque aucun symptôme fâcheux").

Dr. Luttinger writes that "failures to obtain results with pertussis vaccine are due to (1) old inert vaccines; (2) intramuscular, instead of subcutaneous administrations, and (3) insufficient dosage." I might add a fourth and a fifth reason in regard to therapeutic results of possibly more weight than the preceding three, namely: (4) a careful study of a sufficiently large number of uninoculated pertussis patients as controls, and (5) the realization that equally as enthusiastic and presumably equally as reliable reports are published in favor of the treatment of pertussis with benzyl benzoate, with local applications of resorcin, by a change of air, and with injections of *B. influenzae* vaccines, of ether, of the sterile ether extract of the sputum of whooping cough patients, and of sugar solutions.

"PSYCHANALYSIS"

To the Editor:—Your criticism of the lay public's becoming too much interested in psychanalysis is probably very well taken: and this criticism would apply to the average lay magazine writer. But the tone of your remarks also implies a criticism against psychanalysis itself, and in this respect I think your remarks might do some harm. Of course, we all know how the battle has raged about this subject, which is gradually coming into its own. Witness, for example, the great change in British medical opinion in its favor since the war. I know of few well-known psychiatrists who are against psychanalysis. Of course, we often hear a man declare that he has practiced neurology for twenty years or more, adding that he has no faith in psychanalysis. But very few neurologists are distinguished in the psychiatric field. These two specialties are quite distinct and are each too big for one man to excel in both. It is all well and good for a man to declare that he is thoroughly qualified to speak on psychanalysis "because he has met Freud personally," or for another to write that books on this subject are to be found in popular book-shops, especially those patronized by ladies; but this sort of argument convinces no one who is attracted by logic. Again, when the statement is made that "fakers" are practicing this method on the boardwalk at Atlantic City, to deride psychanalysis deceives nobody. Fakers are also practicing medicine in the form of osteopathy, Christian science, etc., on almost every prominent street in our big cities, yet this is no argument against the practice of legitimate medicine.

Psychanalysis takes years to learn properly, as does surgery, gynecology, etc. Years ago when I first began to study the subject, I had a certain amount of skepticism. But when you see, after earnest study, facts about your patients every day—when your patients are able to get insight into their condition—which they can get in no other way, one must be convinced. Like all new things in medicine, yes, in every profession, this subject must have its critics. This applied to the use of rubber gloves, the stethoscope, obstetric forceps, the bacterial origin of disease, etc.

The most convincing reason why I think the profession should accept this method of the diagnosis and cure of the so-called functional nervous conditions and certain psychotic upset is this—that practically all the best-known psychiatrists are earnest students of psychanalysis. Should I hear that men like Adolf Meyer, White, Jelliffe, Kirby, Kempf, MacCurdy, Macfie Campbell, the late Professors Koch and Putman, and numerous other such authorities disbelieve in this method, I might have some doubt as to its utility.

I would ask of the critics of psychanalysis that they attempt to disprove the theory section by section, and not merely attempt to dispose of the subject by sarcasm or witticism. The latter procedure, when discussing a scientific subject, is almost a confession of weakness.

J. F. W. Meagher, M.D., Brooklyn.
President, Brooklyn Neurological Society.

"NICOTIN AND TOBACCO"

To the Editor:—In reference to your editorial on this subject (The Journal, Jan. 15, 1921, p. 180), I would call your attention to some research reported in the *New York Medical Journal* (**99**:519 [March 14] 1914). This article is concerned primarily with the effect of tobacco smoking on mental efficiency, but there is an important discussion of the components of the smoke of tobacco.

The statement that nicotin is the toxic factor in tobacco smoke has been sharply challenged. In Allen's "Commercial Organic Analysis" the statement is made that the great part of the nicotin is converted into pyridin, and my analyses with silicotungstic acid (sensitive to 1 part in a million) bears out this statement. The method of use is described on pages 525-526, and strongly indicates that pyridin and not nicotin is the leading toxic agent in tobacco smoke.

So far as I have been able to ascertain, my findings have not been controverted or disproved; and I have not been able to learn of any reagent more reliable and sensitive than silicotungstic acid. Until some method equally valid has been presented showing contrary results, I feel inclined to believe that these findings remain as yet the most conclusive and reliable.

A. D. Bush, M.D., University, N. D.
Professor of Physiology and Pharmacology,
University of North Dakota, Department
of Physiology.

[Note.—In addition to the foregoing letter, which concerns the scientific aspects of the subject, we have received a number of others. We reproduce two representative of all the rest to indicate the type of discussion which, we fear, does not add to a solution of the problem. The question as to the physical harmfulness of tobacco smoking—whether pipe, cigar or cigaret—is a scientific one and can be settled only by scientific evidence.—Ed.]

To the Editor:—Permit me to congratulate the writer of the editorial on Nicotin and Tobacco in The Journal, January 15. What a striking contrast between its style and that of the antitobacconist's early propaganda! It is becoming evident that what Cowper termed "creamy smoothness" is the shibboleth by which they betray themselves. The writer shows great skill, but. . . .

Charles Busey, M.D., Avery, Idaho.

To the Editor:—I doubt whether there are many readers of The Journal who bank more than I do on the worth and dependability of the teachings of its editorial columns. So far as I am competent to judge, the editorials without excep-

tion fully meet scientific requirements in that their conclusions "approximate the theoretical." All of which expression of appreciation applies in a marked degree to the editorial "Nicotin and Tobacco" in THE JOURNAL, January 15.

I take it that this editorial is intended to stage a nicotin dream. And true to scientific form, the dream note runs from the beginning of the editorial clear down through to about the middle of the article where, for a time, it loses itself in a long array of what THE JOURNAL elsewhere styles "bewildering pseudoscience."

No writer in THE JOURNAL has ever stuck to his text better than has the writer of "Nicotin and Tobacco." And without a quiver or a quaver, in the very last line he gives nicotin credit for the whole thing!

It would be an unwieldy mixture to add anything of psychology to "pharmacophysiology," but one cannot help wondering what bogy there can be in the narcosis produced by nicotin that will get comfort out of the travail of this editorial.

J. L. TRACY, M.D., Toledo, Ohio.

"STRONGYLOIDES INTESTINALIS INFESTATION"

(Translated)

To the Editor:—In a communication in THE JOURNAL, Dec. 18, 1920, Dr. E. P. de Bellard of Caracas expresses the skepticism of former times with regard to the pathogenic rôle of intestinal parasites. We cannot understand why he should dwell on the harmlessness of *Strongyloides*, since he is familiar with the study and treatment of intestinal helminthiasis in the tropics. This worm is actually harmful, and the determination of its presence is most useful for public health purposes. We have discussed the pathogenic rôle of these parasites (*Archivos del Hospital Rosales*, El Salvador, No 130, 1920), after observing zones of rural infestation, basing our work on recent data from helminthologists and sanitarians. We consider it a dangerous parasite whose action on the host differs according to its presence either alone or in symbiosis, and also according to the social environment of the patient. *Strongyloides* increases the sepsis due to intestinal toxins and enhances the action of duodenojejunal worms such as *Necator americanus* and ascarids.

As regards tolerance to the parasite, this is a fact so well known that I will not lay stress on it. All intestinal parasites present two pathologic types, that of carrier and that of patient. *Strongyloides intestinalis* is not an exception to this rule. I may add that in order to decide the significance of recent studies, it is not wise to depend on the classic authors. For instance, Sir Patrick Manson asserted that *Trichuris trichiuria* was harmless, but nowadays it is considered as about the most harmful of all intestinal parasites, as shown by the statements of Dr. J. Antonio Villagrán of Guatemala, who in his study on trichuris ileotyphlocolitis places *Trichuris* above *Necator* in noxiousness.

F. PEÑA TREJO, M.D., St. Louis.
Consul, El Salvador.

"SYNERGISTIC COLONIC ANALGESIA"

To the Editor:—The facts presented by Dr. James T. Gwathmey in his article on "Synergistic Colonic Analgesia" (THE JOURNAL, Jan. 22, 1921, p. 222) are interesting, but the conclusions seem full of danger. I am aghast at the nonchalant manner in which a routine preliminary medication of three-eighths grain of morphin is to be employed, combined with magnesium sulphate, whose synergistic action will increase the latter to a potency of six-eighths grain (with a predilection to the respiratory center). In other words, the patient is to be given three-quarters grain of morphin before the general anesthetic, nitrous oxid and oxygen, or colonic ether anesthesia is employed. It is alleged that this technic will give a safer and better relaxation than when ether is used. I must confess my inability to grasp the force of this allegation. Does colonic anesthesia and gas-oxygen anesthesia per se require a routine preliminary medication of three-quarters grain of morphin to yield satisfactory anesthesia? Furthermore, I fail to see how massive morphin medication "will render expert supervision unnecessary." Indeed, what is the reason to attempt to introduce methods which will exclude expert supervision from the anesthetic field, increasing thereby preventable deaths, depriving future generations of instructors now in the making, and throwing the entire legal responsibility for the patient on the shoulders of the surgeon?

PALUEL J. FLAGG, M.D., New York.

[NOTE.—The foregoing letter was referred to DR. JAMES T. GWATHMEY, New York, writer of the article criticized, who replies:]

Dr. Flagg's criticism does not seem to be based on established clinical facts. If a patient has an idiosyncrasy to morphin, it would be discovered before the danger zone is reached, if the method outlined in my paper is employed, i. e., one-eighth grain of morphin twice repeated at half hour intervals, making three-eighths grain of morphin, for the ordinary adult; this supplemented by nitrous oxid and oxygen. This is the evolution of a series of laboratory experiments and clinical observations with the army in France and verified in civilian practice since my return. Analgesia from morphin, supplemented with nitrous oxid and oxygen, gives a safer anesthetic zone in which to work, insuring better relaxation, than saturation with nitrous oxid and oxygen alone or with ether. The addition of small amounts of magnesium sulphate to the morphin has not affected the respiration center in either our laboratory or our clinical work. Relaxation and after-effects are determined by the surgeon and not by the anesthetist, and are matters of fact.

Other questions in Dr. Flagg's criticism will be answered in an article now in preparation.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

ELECTRIC HEARING DEVICES

To the Editor:—I would greatly appreciate information regarding devices for aiding the hearing of deaf persons:

1. Are devices operated on the principle of the telephone with pocket battery generally satisfactory?

2. Is there any marked difference in efficiency among the various devices of this sort which are now on the market?

3. Specifically, I would be glad if you could give information regarding the merits of the "Oriphone," manufactured and sold by the Harper Oriphone Company, 936 Old South Building, Boston, and also regarding the reliability of this company. I have heard the instrument well spoken of, but the company refuses to let any instruments go out on trial on any conditions.

JAMES C. TODD, M.D., Boulder, Colo.

ANSWER.—1. Electric hearing devices, operated on the principle of the telephone with pocket battery, are used to advantage by a considerable number of persons who are hard of hearing. Such instruments are not "generally satisfactory" for all patients with defective hearing. In the first place, only those whose deafness is more advanced receive any substantial assistance from their use. In the second place, not all the cases of advanced deafness are benefited. Broadly speaking, patients suffering from nerve deafness receive no particular assistance from such devices. It is only when the defect in hearing is caused by disease of the sound-conducting mechanism that the electric hearing devices are of special value. As a matter of fact, with very few exceptions, it is only patients with advanced otosclerosis (bony fixation of the stapes) who

find these instruments a practical aid to hearing. Nor does it matter that in these advanced cases of otosclerosis there is always a more or less extensive degeneration in the labyrinth, producing a large element of nerve deafness superimposed on the obstruction deafness, resulting from fixation of the stapes.

It is possible to state in a general way that it is only those patients with advanced deafness in whom the defect has developed insidiously, beginning in early middle life, that find this device useful. In the same way it may be stated that, as a rule, only those patients who hear better in a noisy place find the electric device an aid. On the other hand, deafness beginning late in life is not benefited by this type of instrument, because these are always cases of pure nerve deafness. The same is, of course, true of those cases of nerve deafness beginning earlier in life.

2. The several devices of this type are operated on the same general principle, and there appears to be very little evidence that one has any particular advantage over others. As a matter of fact, some patients like one device while others prefer another make. One fact seems to be pretty generally accepted, namely, that it is only after a rather prolonged trial that one becomes so accustomed to the use of such instruments as to be really benefited. These hearing devices are being constantly improved, and it seems likely that the best possible device has not yet been perfected. Many of these devices are advertised in an objectionable manner, as is the "artificial ear drum," making extravagant, unwarranted claims. Some of the companies urge the use of noise-making devices to restore the hearing, which they sell as an adjunct to the hearing device. These can only tend further to impair the remnant of hearing.

3. An aurist familiar with the Oriphone considers it "no better than an ear trumpet, but one less uncouth and conspicuous. . . . The trumpet has an invariable column of air as its transmitting medium, and the 'telephone set' a more or less variable current of electricity." Another aurist writes: "So far as I know, the Oriphone is no better than a number of other similar contrivances. These appliances certainly help a very few but absolutely fail to relieve in the majority of cases." Still another aurist says that he knew a physician who was extremely deaf and to whom it was necessary to shriek except when the physician was using the Oriphone, "but with this instrument it is like conversing with a normal hearing." The same man added that in the case of an aged relative who tried the Oriphone, "It did not work well." He said, further: "A nephew of mine who has been almost of a deaf-mute standard of hearing now uses a similar instrument—product of another firm, I do not know the name of the maker—with great success."

REQUIREMENTS FOR LICENSURE IN CUBA

To the Editor:—What are the requirements that must be met in order to secure a license to practice medicine in Cuba? Does any reciprocity exist between Cuba and various states of the Union? Please omit my name.

A. B. C., Birmingham, Ala.

ANSWER.—To practice medicine in Cuba, a graduate of a foreign medical school must furnish proof to the department in charge of public instruction of the validity of his diploma, and of the standing of the institution granting such diploma. After such proofs, the department grants permission for an examination, the fee for which is about $50, American gold. The examination is theoretical and includes also a clinical examination of a patient, description of the method of performing a prescribed operation, and a thesis. Examinations, both written and oral, are held in the Spanish language, or through an interpreter; the interpreter to be chosen by the department, the applicant to pay for his services. Reciprocal relations have not been established between Cuba and any of the states of this country.

TESTS FOR HYPERTHYROIDISM

To the Editor:—1. Is the giving of graduated doses of thyroid extract of any value in differentiating hypothyroidism and hyperthyroidism? 2. How does this compare with the basal metabolism tests?

A. R. LAXNON, Denver.

ANSWER.—1. The procedure is of some value in differentiating the two conditions, but it is better, if possible, to differentiate them first and give the thyroid extract only when it is indicated. 2. Measurements of the basal metabolic rate do no harm. They give immediate information, and if one accepts the view that there is no hyperthyroidism without an increased rate, the test is crucial.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALASKA: Juneau, March 1. Sec., Dr. Harry C. Vighne, Juneau.
CALIFORNIA: Los Angeles, Feb. 14-17. Sec., Dr. Charles B. Pinkham, 727 Butler Bldg., San Francisco.
CONNECTICUT: Hartford and New Haven, March 8-9. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford. Sec., Homeo. Bd., Dr. Edwin C. M. Hall, New Haven. Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport.
MAINE: Portland, March 8-9. Sec., Dr. Frank W. Searle, 140 Pine St., Portland.
MASSACHUSETTS: Boston, March 8-10, Sec., Dr. Walter P. Bowers, Rm. 144, State House, Boston.
NATIONAL BOARD OF MEDICAL EXAMINERS, St. Paul, Minneapolis and Rochester, Minn., Feb. 23-March 2. Sec., Dr. J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia.
NEW HAMPSHIRE: Concord, March 10-11. Sec., Dr. Charles Duncan, Concord.

MEDICAL SCIENCE, CULTS AND PUBLICITY

From the beginning, scientific medicine has had to contend against certain idle beliefs and delusions on the part of the public, some of which have been quite picturesque and fantastic. In a recent editorial,[1] Mr. George W. Whiteside, counsel for the New York State Medical Society, sets forth a number of these delusions, leading up to the latest of their ilk, the chiropractors, who, "with elaborate offices, paraphernalia and trappings, claim to cure all disease through pressure on the sufferer's vertebra." Their claims are shown to be based on a thoroughly false and unscientific hypothesis, yet they widely proclaim and advertise their "cures" as evidence of the truth of their claims until they "have actually created in some quarters a public sentiment supporting their propaganda." Reference is made also to cults "that scorn the very existence of disease and assert that it is but a baseless fear in the mind of spiritually deficient man." The medical profession is in the best position to recognize the falsity, the hopelessness and even the harmful character of these delusions, but the profession is still resting in the belief that these, like previous fads, will "run their course and in due time be forgotten." The author points out, however, that, differing from those formerly existing, these later fads have "developed a formidable organization for proselyting purposes" and that, "by a publicity campaign of attractive phrasing," they have "succeeded in arousing a prejudice against the medical profession and its scientific truths, evidently because their preposterous claims are being unchallenged. He shows that the clamor of these small groups of selfish men, even with its evident falsity, "can easily be mistaken by legislators for popular opinion," and, as a consequence, "the exponents of these false beliefs in many states have received official sanction and have been licensed to undermine the public health for their own private and sordid gain." In the United States, the citizen has a duty to the state and to his fellow man. The medical profession "discharges its duty in the practice of the healing art with much self-sacrifice and is entitled to the respect of the people at large and to recognition by the state in the councils of government." That it does not exercise power commensurate with its service to the state is due to its shrinking from the use of publicity. "Until this condition is changed," says the author, "medical opinion will have little effect on the trend of medical legislation." He strikes the keynote, however, when he says: "Without publicity in a democratic form of government, popular sentiment cannot be aroused and, therefore, will not find expression in legislative action." The false beliefs and painful delusions which today are defying the truths of medical science "will not find support and entrenchment in legislative action if they are squarely met in the form of popular discussion." Merely to promote discussion in scientific journals is not sufficient, since "the great mass of the public can be reached only through the medium of the lay press and the public forum." In this way "a true sentiment, a public support, respect and love for medical science

1. The Trend of Medical Legislation in the State of New York, editorial, New York State J. Med., October, 1920.

would be created." The author believes that the profession should be "less sensitive to glorifying its achievements," but should be willing to "render an accounting of its accomplishments that the world may know how faithfully and devotedly it has discharged its duty." Having thus gained public support, the profession's voice in legislative halls will then be heard and heeded. In brief, "the majority of legislative activities affecting the medical profession and to which it is opposed are made possible by the people's ignorance of the essential truths of medical science and of the good work being done by the profession. Bring the public to a realization of these things, and the voice of the profession will be more heeded in . . . the halls where laws are made." Awaken the same confidence in the profession's legislative wisdom on medical matters that is now reposed in its medical skill, and the legislative desires of the profession will be heeded.

IRREGULARS ATTACK MISSOURI PRACTICE LAW

What is probably happening in several states occured in Jefferson City, Mo., a few days ago, when irregulars of all kinds made their annual attack on the state board of health. The chiropractors had a great force present before the legislative committee. They spoke for about an hour and a half, beginning with a senator, followed by one Ray, who conducts a chiropractic college in Missouri, and several other lesser lights, with a lot of "cured" patients. Several physicians who were present spoke in behalf of the state board of health. Then appeared Palmer of "Fountain-Head of Chiropractic" fame. The usual claims were made that the chiropractors "do not practice medicine" but "only assist nature"; that they "do not need to study medicine so long as medical students do," because they "do not have to waste time on the diseases physicians treat" or the "poisonous remedies" that physicians use. The physicians replied that chiropractors were looked on by the public as doctors—a matter favored by the chiropractors themselves except when before legislators; that chiropractors saw people with all kinds of diseases and therefore needed to have a training equal to that of physicians in order to be able to recognize the diseases they are attempting to treat, to report contagious diseases, and to exclude surgical cases. It was shown that the chiropractors admitted obstetric cases to treatment, although before legislators they claimed that they did not want to treat them. It was shown that three years of only six months each—the requirement set forth in the proposed bill—did not permit sufficient time to be devoted to the branches with which all who treat human diseases should be familiar. The folly of multiplying examining boards was shown, and it was pointed out that the board of health was able to carry on all the essential work and that it should be strengthened rather than weakened. It was emphasized that such legislation would be the means of multiplying low type teaching institutions which would only turn out more poorly educated doctors. It is hoped that the legislators of Missouri will appreciate, on the one hand, the selfish ends being sought by the chiropractors, and, on the other hand, the importance of upholding reasonably high standards of medical licensure.

Connecticut November Examination

Dr. Robert L. Rowley, secretary, Connecticut Medical Examining Board, reports the oral and written examination held at Hartford, Nov. 9-10, 1920. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 40 candidates examined, 30 passed and 10 failed. Five candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Yale University (1920) 76, 76.3, 80, 84.2		85.8
Bowdoin Medical School (1919) 83.5, (1920) 78.5, 78.7		
Johns Hopkins University (1910) 80.1, (1918)		83.6
Harvard University (1916) 82.4, (1919)		81.7
Tufts College (1919) 77.1, (1920) 75.1, 78.3, 83.1,		84.8
Washington University (1919)		80.9
Albany Medical College (1919)		82.4
Columbia University (1910)		86.6
Fordham University (1920)		76.2
Syracuse University College of Medicine (1912)		81
University and Bellevue Hospital Medical College (1920) 88.1 (1920) *		80.1, 85.1
Jefferson Medical College of Philadelphia (1919) 82.7, (1920) 77.3, 76.2 (1917)		83.2
Baylor University College of Medicine (1920)		75.2
FAILED		
Yale University School of Medicine (1920)		73.5
Atlanta Medical College (1914)		73.7
Harvard University (1904)		62.6
Medico Chirurgical College of Philadelphia (1915)		74.7
Meharry Medical College (1920)		58.2
Medical College of Virginia (1917) 71.1, (1919)		71.1
University of Vermont (1914)		70.2
University of Budapest (1911) *		65.7
Montreal School of Medicine and Surgery (1918)		58.5

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Harvard University (1898)	(1908)	Mass.
Columbia University (1899)	New York, (1904)	Oregon
University of Pennsylvania Department of Medicine	(1908)	Penna.

* Graduation not verified.

Missouri October Examination

Dr. George H. Jones, secretary, Missouri State Board of Health, reports the written examination held at Kansas City, Oct. 6-8, 1920. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined, 14 passed and 1 failed. Sixteen candidates were licensed by reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University (1920)		87.7
Howard University (1920)		79.1
Chicago College of Medicine and Surgery (1914)		80.1
University of Kansas School of Medicine (1920)		86.2
Barnes Medical College (1898) 75, (1904)		83.3
St. Louis College of Physicians and Surgeons (1918)		75.1
Jefferson Medical College of Philadelphia (1919)		83.1
University of Pennsylvania School of Medicine (1920)		90.7
College of Physicians and Surgeons, Memphis (1911)		81
Meharry Medical College (1919) 78.3, 82.1, (1920)		75.2, 82.3
FAILED		
St. Louis College of Physicians and Surgeons (1918)		57.1

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Howard University (1910)		Kansas
Bennett Medical College (1914)		Illinois
Rush Medical College (1920)		Illinois
Northwestern University (1920)		Illinois
University of Illinois College of Medicine (1916)		Illinois
Tulane University (1919)		Louisiana
Southwest School of Medicine and Hospital (1916)		Kansas
University Medical College of Kansas City (1909)		Kansas
John A. Creighton Medical College (1912), (1913)		Nebraska
University of Oklahoma (1917)		Oklahoma
University of Pennsylvania School of Medicine (1917)		Kansas
Meharry Medical College (1905)		Mississippi
Medical College of Virginia (1915)		Virginia
University College of Medicine, Richmond (1907)		W. Virginia
Marquette University (1913)		Illinois

Arkansas November Examination

Dr. T. J. Stout, secretary, Arkansas State Board of Medical Examiners, reports the written examination held at Little Rock, Nov. 9-10, 1920. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 7 passed and 2 failed. The following colleges were represented:

College	Year Grad.	Number Licensed
PASSED		
University of Arkansas (1920)		2
Tulane University of Louisiana (1919) 1, (1920)		1
Washington University (1903)		1
Jefferson Medical College of Philadelphia (1913)		1
Meharry Medical College (1902)		1
FAILED		
Meharry Medical College (1912) 1, (1918)		1

College	Year Grad.	Reciprocity with
LICENSED BY RECIPROCITY		
Tulane University (1919)		Louisiana
St. Louis University School of Medicine (1907)		Illinois
University Medical College of Kansas City (1898)		Kansas
Washington University (1910) Illinois, (1917)		Missouri
Columbia University (1918)		Texas
Western Reserve University (1886)		Nevada
Memphis Hospital Medical College (1896)	(1899)	Tennessee
(1909) Mississippi		
Universities of Nashville and Tennessee (1910)		Mississippi
(1911) Tennessee		
University of the South Medical Department (1900)		Tennessee
University of Tennessee (1900)	(1913)	Tennessee
Vanderbilt University (1901)		Tennessee
University of Texas (1915)		Texas
Medical College of Virginia (1916)		Virginia

Book Notices

THE X-RAY ATLAS OF THE SYSTEMIC ARTERIES OF THE BODY. By H. C. Orrin, O.B.E., F.R.C.S. Cloth. Price, $5. Pp. 91, with illustrations. New York: William Wood & Company, 1920.

This atlas of arteries in situ is a welcome contribution to anatomic illustration. It shows the arteries throughout the body in twenty-one roentgenograms, of which two are so prepared that they can readily be converted into six cards for stereoscopic study covering all regions. Twenty roentgenograms were made from the body of a full term fetus after injection of the arteries. This was necessary because suitable adult material was not available. One roentgenogram was made from a soldier's hand, amputated after the arm had been shattered by a shell. The clearness and definition with which even the small arteries and anastomoses stand out is a revelation of the possibilities of roentgen-ray photography. A brief text, tabular in character, is arranged for convenient reference in the study of the plates. Some features of the anatomy of the arteries which can be studied to especial advantage in these plates, and which will make the book appreciated, are the relative richness of arterial supply of different regions and structures, anastomoses and collateral circulation, and relations to bones and joints. Incidentally, the state of ossification of the bones at the time of birth is well shown. It is to be hoped that subsequent editions may be enlarged by the inclusion of a full series of plates representing all the arteries of the adult. Surgeons will appreciate the atlas because the relations shown are accurate and reliable—qualities inherent in roentgenograms. Such plates might well be mounted and exhibited in dissecting laboratories so that the study of them might supplement dissection.

LABORATORY COURSE IN HISTOLOGY. By Adolph Elwyn, A.M., Assistant Professor of Anatomy, College of Physicians and Surgeons, Columbia University, and Oliver S. Strong, Ph.D., Associate Professor of Neurology, College of Physicians and Surgeons, Columbia University. Cloth. Price, $2.50. Pp. 235. New York: Physicians and Surgeons Book Company, 1920.

This little manual, of 118 blank and 118 printed pages, represents the laboratory instructions already tried out in the course in histology at Columbia University. The blank pages are to permit modification or amplification of any part of the course, being intended for notes regarding supplemental material, either fresh or in special preparations, introduced by instructors. The printed pages contain directions for study of the sections issued to the classes at Columbia, with only enough description to secure proper orientation—the amount being necessarily greater in the part of the book devoted to the nervous system (sixty-three pages). The student's attention is guided and directed, but he is not told what he sees; rather, he is asked to see for himself, the idea evidently being that the power of seeing for himself is useful and necessary in a physician, that it merits cultivation, and that it is more worth having then a tendency toward passive reception of observations made by some one else. The preparations indicated are well selected and well arranged, and the content sufficient to meet the needs of medical students in the introductory required course in histology, provided the amplification suggested is utilized in the study of fresh material. The method requires good instructors, and should produce good results with students of capacity.

MENTAL DISORDERS BRIEFLY DESCRIBED AND CLASSIFIED, WITH A FEW REMARKS ON TREATMENT AND PREVENTION. By Charles B. Thompson, M.D., Medical Director of the Mental Hygiene Society of Maryland. Paper. Pp. 48. Baltimore: Warwick & York, 1920.

This outline offers a modern classification of mental diseases. The author follows Freud closely in his discussion of the causes of mental diseases, explicable in psychologic terms. The elation depressive oscillation or manic-depressive psychosis, and the discussion of the causes of the dementia praecox reaction are well done, even in the limited space allotted to them; still, the syllabus is brief enough to be inaccurate in places. For instance, no mention is made of the pupillary changes in the description of the physical symptoms of paralytic dementia. The syllabus is intended to serve as a guide to beginners in the field of psychiatry.

DIATHERMY IN MEDICAL PRACTICE. By Claude Saberton, M.D., Hon. Radiologist to the Harrogate Infirmary. Cloth. Price, $2.25 net. Pp. 138, with 33 illustrations. New York: Paul B. Hoeber, 1920.

The first five chapters of this book are devoted to the explanation of the principles concerning high frequency currents, their generation, and their medical and surgical application. This presentation, while not accurate and complete enough for the expert, is certainly not sufficiently perspicuous to the layman. In his enthusiasm, the author goes so far as to mention diathermy as a valuable medical aid in the treatment of neurasthenia. It is doubtful whether pathologists and clinicians will accept his use of the term "fibrositis" as applied to various inflammatory affections of the interstitial fibrous tissues of the body in place of "muscular rheumatism." In the chapters on surgical diathermy the bipolar method, using two active electrodes, is practically not discussed at all. Sentences like "There is complete destruction of visible and palpable malignant disease" do not serve to enhance the value of this pamphlet. That Dr. Saberton recommends chloroform anesthesia in operations inside the oral cavity will not add to the popularity of his book among American surgeons.

VORLESUNGEN ÜBER BAKTERIOLOGIE, IMMUNITÄT, SPEZIFISCHE DIAGNOSTIK UND THERAPIE DER TUBERKULOSE, FÜR ÄRZTE UND TIERÄRZTE. Von Dr. Ernst Löwenstein, a. o. Professor an der Universität Wien. Paper. Price, 43 marks. Pp. 476, with 3 illustrations. Jena: Gustav Fischer, 1920.

In the preface, the author states that his purpose is to collect all the facts coming within the subjects covered, as far as they have been established by trustworthy methods, in order to accomplish two purposes: 1. That every earnest physician, even when isolated where access to literature is impossible, may be enabled to do independent work. On this ground the methods are given particular attention. 2. That every physician may be enabled to reach proper conclusions concerning the value of new discoveries reported in this field. "A good critical capacity is necessary in these days, in order to keep a clear head against the flood of new medicaments with which the medical industries overwhelm us, and against their more or less scientifically masked advertisements." The greater part of the book deals with the immunologic reactions of tuberculosis, from the standpoint of both diagnosis and therapy, and the confusing literature on these topics is digested in a properly objective and critical spirit. The first third of the space is given over to a discussion of the properties of the tubercle bacillus itself, including also the subjects of disinfection and chemotherapy. The purposes of the author seem to be well achieved. There is an enormous amount of well-digested information, in a comparatively small space, and with a considerable bibliography. While of necessity much of the literature published since the war in countries outside the central empires has not been considered, there are not many important omissions. The book should be of value as a reference work for all those interested in tuberculosis, whether from the standpoint of clinical or from that of laboratory investigation.

NUCLEIC ACIDS, THEIR CHEMICAL PROPERTIES AND PHYSIOLOGICAL CONDUCT. By Walter Jones, Ph.D., Professor of Physiological Chemistry in the Johns Hopkins Medical School. Second edition. Boards. Price, $3.25. Pp. 150. New York: Longmans, Green and Co., 1920.

The publication of the Monographs on Biochemistry is an important service to medical and biologic science, since it puts in readily available form critical reviews of important subjects in this field, each prepared by an authority specializing on the topic which he is discussing, and keeps these reviews up to date. For the medical sciences, one of the most important of these monographs is that on nucleic acids by Prof. Walter Jones, which now appears as a revised edition, the first edition having been published in 1914. It constitutes the most useful source of information available concerning the composition and properties of these important and characteristic elements of cell structure, and the source of the purins. The chief changes noted in the new edition concern the development of our knowledge concerning the structure of the nucleic acid molecule, which has been worked out mostly in this country by P. A. Levene and Walter Jones and their collaborators.

Medicolegal

Treatment of Osteomyelitis After Parent Refused to Give Consent to Operation

(Routt v. Ready (D. C.), 265 Fed. R. 455)

The Court of Appeals of the District of Columbia, in affirming a judgment, with costs, in favor of the defendant, a practicing physician and surgeon, says that the action was one for damages for alleged malpractice in the treatment of the plaintiff, an infant. The two counts of the declaration on which the case was tried charged the defendant with failure to make proper diagnosis and with lack of skill, care and attention in treating the plaintiff's ailment, which consisted of osteomyelitis of the bone of the leg. After a preliminary operation, the defendant recommended a second operation, to which the mother of the child refused to give her consent. The defendant continued to treat the child for several months, when another surgeon was consulted, who recommended an immediate operation, which was performed with successful results, except that the plaintiff's leg is deformed, which slightly interferes with its use. The only question of law which called for consideration was whether the refusal of the mother to permit an operation relieved the defendant from liability for the course pursued. The court thinks that it did, in the absence of any evidence showing lack of ordinary skill in the treatment of the case in other particulars. The mother was the parent and natural guardian of the child, and so long as she assumed the responsibility of disregarding the defendant's advice as to the necessity of an operation, and he continued to treat the patient with reasonable skill, he could not be held liable for the result. In other words, when a physician in charge of a patient prescribes the proper treatment and points out the danger that may result from failure to pursue the course outlined, and the patient, or, as here, the mother of a child under treatment, refuses to be guided by his advice, the physician is exempt from legal responsibility. The propriety or impropriety of abandoning the case, and the question whether the conduct of the defendant after recommending the second operation was such as would be expected from a physician of ordinary skill in that community, were submitted to the jury on the testimony adduced, and resolved in the defendant's favor. No mistake was made in diagnosis, the proper operation was recommended, and from that time on the damage resulting from failure to operate lay with the mother, and not with the defendant.

Suit for Penalty Is Civil, With Right to Jury

(State Board of Medical Examiners v. Curtis (N. J.), 110 Atl. R. 816)

The Supreme Court of New Jersey, in affirming a judgment in favor of the defendant in this proceeding for practicing medicine in violation of the act of 1894, as amended in 1915, holds that a suit under the statute, for penalty for practicing medicine without a license, is a civil one. The court says that, as in the other cases, now growing numerous, in which the question has been raised, the language of different sections of the medical examiners' act is incongruous, and provisions may be cited which afford an argument for either side. But the court thinks that, in view of the decisions, it ought to be considered settled that, so far as this court is concerned, suits for penalties under statutes like the present are civil suits. The reasoning applies with all the greater force since the procedure under the medical examiners' act is confined to two courts, the district court and the common pleas, which have always been peculiarly courts of civil jurisdiction. Then the question was as to the right to trial by jury. The fact that the suit was a civil one did not of itself settle that question. The conclusion is that it was proper to try the case before a jury, either party to a civil suit in the district court being entitled to a trial by jury. The court reaches its result with the greater satisfaction since it does away with the serious objection in point of policy to the medical examiners' act, in that the act permits the arrest and imprisonment for 100 or 200 days of a defendant on a complaint, not by one having knowledge, but on mere information and belief. Such a provision would go far to make it impossible for a defendant wrongfully imprisoned to recover damages; the prosecutor would not even be obliged to show that his belief was a reasonable one; it would be enough that he had received information, which he believed, no matter from whom it came.

It was urged that in this case the trial judge should have directed a verdict for the plaintiff. The evidence was suggestive that the defendant in one instance at least undertook to diagnose and prescribe, but his testimony was that he merely sold medicine and avoided any attempt to make a diagnosis or to prescribe. Whether he admitted facts sufficient to sustain the charge depended on what he in fact said and did, and presented a question for the jury.

Commission of Experts Supersedes Jury—"Classical" Insanity

(In re Grammer (Neb.), 178 N. W. R. 624)

The Supreme Court of Nebraska, in overruling a motion to stay an execution after conviction of a capital offense, holds that Section 9098 of the Revised Statutes of Nebraska of 1913, providing that if a person, convicted of a capital offense, was thought to have become insane, he should be entitled to a jury trial to determine that question, and, if found insane, execution should be stayed, has been repealed by implication by Section 9212, which provides for a commission of experts, instead of a jury, to pass on the question. The court holds, further, that it was not sufficient that the petition in this case stated that since the conviction defendant Grammer had become insane, as shown by the affidavit of a physician, attached to the petition, which affidavit stated that the physician felt convinced that the defendant "is and has been classically insane." By such allegations as these it was not shown that Grammer had become insane within the meaning of that term as used in the statute. Why the physician limited his allegation by the word "classically," and omitted all other statement of fact or description of condition of mind, which might point to the kind or degree of insanity referred to, the court is unable to tell. It is apparent, however, that he desired to qualify the term "insanity," and he did not explain what he meant by it. It is not every degree of insanity which would entitle the petitioner to the relief sought. Generally speaking, insanity, as defined by this court, is not mere imbecility or weakness of mind, however great that may be. To entitle a person, convicted of a capital offense, to a suspension of sentence under Section 9212, it must appear that he has become insane, not in some slight or peculiar or classical degree, but that his state of mind and mental condition are such that he does not understand, and is incapable of understanding, the nature of the proceeding against him, and of his impending fate and execution, and is unable, in a rational manner, to offer a defense or make objection to execution.

Physician's Bill Should Be Probated Separately

(Goulden v. Ramsey (Miss.), 85 So. R. 109)

The Supreme Court of Mississippi holds that, in this action against the administrator of an estate, in which a son-in-law of the deceased included in his claim the amounts of the latter's physician's and drug bills, after having paid them, these two items of his claim should not have been allowed. The court says that the physician's and drug bills were debts against the deceased, as they were necessarily incurred in her lifetime, and, as the evidence did not disclose that they were paid by her son-in-law at her request, they should have been separately probated on the affidavit of the original creditors that they were "just, correct, and owing from the deceased," etc., in accordance with the provisions of Section 2106, Code of 1906 (Section 1774, Hemingway's Code).

Society Proceedings

COMING MEETINGS

American Association of Anatomists, Philadelphia, March 24-26.
American Association of Pathologists and Bacteriologists, Cleveland, March 25-26.
Midwinter Conference under the auspices of the Council on Health and Public Instruction and the Council on Medical Education and Hospitals of the American Medical Association, March 7-10.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

January, 1921, 161, No. 1

Diagnosis of Bronchopneumonia and Its Complications. N. B. Foster, New York.—p. 1.
Internal Pancreatic Function in Relation to Body Mass and Metabolism. F. M. Allen, New York.—p. 16.
*Benzyl Benzoate in Pediatric Practice. J. Ruhräh, Baltimore.—p. 32.
*Physiology of Liver: 1. Technic and General Effects of Removal. F. C. Mann, Rochester, Minn.—p. 37.
Alimentary Hypersecretion; Gastric Hypersecretion; Gastrochronorrhea. J. Reiss, New York.—p. 43.
Treatment of Chronic Intestinal Invalid. J. Bryant, Boston.—p. 63.
*Etiology of Typhus Fever. E. W. Schultz, San Francisco.—p. 78.
Acute Epidemic Encephalitis. C. H. Miner and S. L. Freeman, Wilkes-Barre, Pa.—p. 93.
Recurrent Type 1 Pneumonia: Serum Treatment of Two Attacks One Month Apart. H. M. Thomas, Boston.—p. 103.
*Colloidal Gold Curve in Epidemic Encephalitis. T. K. Davis and W. K. Kraus, New York.—p. 109.
Carcinoma of Supra-Ampullary Portion of Duodenum. N. B. Herman and W. C. von Glahn, Baltimore.—p. 111.
Etiology of Acne Rosacea Through a Visceroneurologic Mechanism. F. P. Miller, Los Angeles.—p. 120.

Benzyl Benzoate in Pediatric Practice.—Ruhräh states that benzyl benzoate may be used in place of atropin wherever a relaxing effect is desired on spasm of smooth muscle. He recommends it in bronchial asthma, spasmodic bronchitis, gastric or intestinal colic, hiccough and spasmodic constipation. In whooping-cough, he says, its action is often most beneficial, but the results are uncertain, as is the case with all other antispasmodics in this disease. In general convulsive conditions not dependent on organic lesions of the central nervous system, especially in the new-born, the drug is of benefit.

Physiology of Liver.—A method is described by Mann for the total removal of the liver of a dog without complicating factors other than the anesthetic. This makes it possible to study the effect resulting solely from the loss of liver tissue. An animal from which the liver is removed by this technic recovers from the immediate effects of the operation and then presents a definite and characteristic syndrome, a sequence of events invariably ending in death. The length of life after removal of the liver in this series of experiments has been from five to eleven hours.

Etiology of Typhus Fever.—In Schultz's opinion there is no conclusive evidence that the *Bacillus typhi-exanthematici* of Plotz is the cause of typhus fever. Proteus X 19 has more in favor of its being the cause of typhus fever than the Plotz bacillus, but on immunologic and other grounds it appears that both these bacteria are secondary invaders. There is evidently a state of more or less mixed infection in typhus fever. There may be a state of symbiosis. Schultz suggests that *Rickettsia prowazeki* is probably the cause of typhus fever.

Colloidal Gold Curve in Epidemic Encephalitis.—Davis and Kraus have been unable to observe any relation between the colloidal gold curves noted and the severity and duration of the disease. However, it does appear that in a large percentage (41 per cent.) of cases of epidemic encephalitis chemical changes, whether parenchymatous or meningeal, are present in the central nervous system which produce substances in the spinal fluid able to bring about an abnormal colloidal gold reaction. The diagnosis by means of the colloidal gold reaction cannot be made without confirming clinical evidence based on the progress and symptomatology of each case.

American Review of Tuberculosis, Baltimore

January, 1921, 4, No. 11

*Pulmonary Atelectasis as Source of Confusion in Physical Examination of Chest. H. Sewall, Denver.—p. 811.
*Extrapleural Thoracoplasty; Modification of Operation of Apicolysis Utilizing Muscle Flaps for Compression of Lung. E. Archibald, Montreal.—p. 828.
Purine Bases of Tubercle Bacillus. E. R. Long, Saranac Lake, New York.—p. 842.
*Mechanism of Bacillus Carrier State with Special Reference to Friedländer Bacillus. A. L. Bloomfield, Baltimore.—p. 847.
*Conditions Commonly Mistaken for Pulmonary Tuberculosis. B. Stivelman, Bedford Hills, N. Y.—p. 856.
Indigent Migratory Consumptive Problem. D. E. Breed, Austin, Tex.—p. 866.

Pulmonary Atelectasis.—Sewall states that a relative degree of atelectasis occurs normally in any pulmonary area which is not habitually undergoing vigorous ventilation; it is favored by feeble and opposed by vigorous respiratory movements. In proportion as the vigor of respiratory aeration is diminished the pulmonary collapse becomes more extreme. Minor degrees of atelectasis may be denoted clinically by the demonstration of circumscribed areas of relative percussion dulness which quickly acquire normal resonance after deep breathing or with change of posture; or by the advent, with deepened breathing, of inspiratory râles which quickly disappear under respiratory exercise. Collapse of an extensive volume of pulmonary tissue is denoted by the contraction of overlying chest wall combined with physical signs simulating those of consolidation or of an encysted pleural effusion.

Extrapleural Thoracoplasty.—In cases of chronic disease with marked tendency to fibrosis with cavity in the upper lobe and strictly, or almost strictly, unilateral, Archibald utilizes flaps raised from the pectoralis major and minor muscles to produce a compression of the lung. The muscle flaps having been made, portions of the second, third and fourth ribs are resected subperiosteally anteriorly under the pectoral muscles. The parietal pleura is separated with the finger from under the clavicle and the first rib, and from side to side, but not more than an inch or so downward at the back. This leaves a pocket into which the flap of the pectoralis major is crowded. The technic of the operation is described in detail.

Mechanism of Bacillus Carrier State.—Bloomfield presents experimental evidence on the mechanism of the carrier state, at least in certain instances. It is shown in the case of the Friedländer bacillus carriers that the breeding place of the bacteria is in a definite focus—the tonsil. From this point the organisms are discharged into the open pharyngeal cavity, and at times they may be introduced into the nose. Of eighty-five individuals, 5.8 per cent. were found to be carriers of *B. Friedländer*. It was impossible artificially to produce a carrier state by repeated inoculation with *B. Friedländer*. The conclusion reached by Bloomfield is that the carrier state depends on a focus of diseased tissue which affords a breeding place for the bacteria.

Conditions Mistaken for Pulmonary Tuberculosis.—Stivelman claims that tuberculosis is unquestionably much overdiagnosed in those who for some reason present themselves for examination in the clinics of large municipalities. Errors in diagnosis are due to lack of care and thoroughness, failure to examine the sputum carefully, disinclination to utilize the roentgen rays, and, above all, failure to correlate the history and clinical findings. Among 1,700 cases diagnosed as tuberculosis, 176, or 10.4 per cent., were nontuberculous. The conditions most frequently diagnosed incorrectly were: chronic bronchitis and emphysema, cardiac conditions, nonspecific diseases of the upper respiratory tract, neurasthenia, chronic interstitial pneumonia, bronchiectasis, chronic nontuberculous lung infections, asthma, gastric ulcer, pulmonary abscess and dysthyroidism.

Annals of Surgery, Philadelphia

January, 1921, 73: No. 1

Bone Grafting: Study of Cases Operated in U. S. Army Hospitals. J. B. Walker, New York.—p. 1.
*Bacteriology of Infected Wounds with Especial Reference to Importance of Streptococcus Hemolyticus. T. H. Sweetser, Minneapolis.—p. 4.
*Picric Acid in Operative Surgery. C. E. Farr, New York.—p. 13.
Intracranial Aerocele Following Fractured Skull. G. Horrax, Boston.—p. 18.
Squamous Cell Epithelioma of Thyroid: Review of Literature and Report of Case. C. A. Roeder, Omaha.—p. 23.
Bronchopulmonary Fistula. A. O. Wilensky, New York.—p. 30.
Cholelithiasis. G. Woolsey, New York.—p. 46.
*Production by Chemical Means of a Specific Cholecystitis. F. C. Mann, Rochester, Minn.—p. 54.
Hemorrhagic Cysts of Spleen: Report of Case. C. S. Hamilton and E. H. Boyer, Columbus.—p. 58.

Polycystic Kidneys and Liver: Report of Case. D. N. Eisendrath, Chicago.—p. 62.
Renal Tuberculosis in Twins. H. L. Kretschmer, Chicago.—p. 65.
Technic of Operative Treatment of Neoplasms of Urinary Bladder. E. Beer, New York.—p. 72.
Tibial Tubercle Affections: Report of Seven Cases. R. Stephens, New York.—p. 77.
Hysterectomy in Lankenau (Formerly German) Hospital. J. B. Deaver, Philadephia.—p. 84.
Nonoperative Treatment of Fractures. E. C. Cutler, Boston.—p. 91.
*Exstrophy of Bladder in Female. J. Burke, Buffalo.—p. 100.
Gelatiniform Carcinoma of Breast. P. J. Keel, Columbus.—p. 108.

Bacteriology of Infected Wounds.—Sweetser says a combination of streptococcus hemolyticus and staphylococcus aureus was the most common of all associations in wounds. That association was particularly frequent in fatal wounds. *Streptococcus hemolyticus, Staphylococcus aureus, Bacillus welchii, Bacillus coli-communis, Bacillus proteus,* and to a less extent, *Staphylococcus albus,* were the bacteria appearing most often in both the fatal and nonfatal cases. The prognosis seems to have been good in cases showing *Staphylococcus aureus* or other aerobes aside from streptococcus. Association with *Staphylococcus aureus* seemed to lower the virulence of infection with anaerobes. Infections with anaerobes showed a high death rate, but a short period of danger to life, unless the anaerobes were associated with steptococcus. Deaths from steptococcus infection were numerous and occurred at least up to the end of the fourth month. The mortality was even higher where streptococcus was associated with *Staphylococcus aureus* or with anaerobes. Conversely: cases fatal early usually showed anaerobic infection; those patients dying late invariably showed streptococcus infection. Most of the early improvements and cures were cases of infection by aerobes other than streptococcus, while the improvements and cures that were tardiest generally showed infection by streptococcus without anaerobes, or by streptococcus and *Staphylococcus aureus* without anaerobes.

Picric Acid in Operative Surgery.—Picric acid, Farr says, is ideal as a skin application preceding operation in that it never irritates and that it remains in the skin for a long period of time. Its only drawback is its rather startling color, which may annoy sensitive patients when exposed surfaces are stained. From the clinical standpoint, Farr's results compare very favorably with those formerly obtained with iodin and with the older methods of skin preparation.

Chemically Induced Cholecystitis.—Mann found that the intravenous injections of a solution of chlorinated soda in dogs produces a definite reaction of the gallbladder in a high percentage of experiments. The reaction consists of a breaking down of the capillaries and infiltration of the wall of the gallbladder with blood. The reaction is undoubtedly produced by some chemical in the solution; chlorin is suggested as the probable substance.

Exstrophy of Bladder in Female.—Burke reports the case of a girl successfully operated on by the extraperitoneal method for this condition.

Archives of Internal Medicine, Chicago

January, 1921, **27**, No. 1

*Study of Unusual Endocrine Disturbances; Their Associated Myopathies, Endocrine Balance and Metabolism Findings. S. Brock, New York, and W. E. Kay, San Francisco.—p. 1.
*Blood Volume in Pernicious Anemia. G. P. Denny, Boston.—p. 38.
*Simple Device for Measuring Rate of Metabolism. H. M. Jones, Chicago.—p. 48.
*Spirochetal Pulmonary Gangrene. M. Fishberg and B. S. Kline, New York.—p. 61.
Significance of Acidosis of Methyl Alcohol Poisoning. C. C. Haskell, S. P. Hileman and W. R. Gardner, Richmond, Va.—p. 71.
*Constancy of Volume of Blood Plasma. A. V. Bock, Boston.—p. 83.
*Hereditary Hemorrhagic Telangiectasia with Recurring (Familial) Hereditary Epistaxis. H. I. Goldstein, Camden, N. J.—p. 102.
Some Fundamental Principles of Electrocardiography. G. Fahr, Madison, Wis.—p. 126.
Acholuric Jaundice. M. A. Blankenhorn, Cleveland.—p. 131.

Endocrine Disturbances.—Three cases are presented in detail by Brock and Kay, in each of which remarkable endocrinopathies are associated with unusual manifestations in the muscular system. Attention is directed to the endocrine balance, the sugar and the basal metabolism. It is shown that the basal metabolism is the result of the sum total activities (in part compensatory) of the various ductless glands. In polyglandular disorders, such as those described, the basal metabolism does not reflect the degree of participation of any individual gland. In two cases a congenital developmental defect is postulated as the cause of both the endocrine deficiencies and the psychic disorders.

Blood Volume in Pernicious Anemia.—A method for calculation of blood volume is described by Denny. By this method nineteen determinations were made in ten cases of pernicious anemia. The total blood volume in these cases was reduced in all but two cases. Plasma volume remained essentially normal, the decrease in total volume being due to loss of cell mass. One case showing a normal volume had a high plasma volume. There was no noticeable relation between the severity of the disease and the decrease in total volume.

Simple Device for Measuring Rate of Metabolism.—An apparatus for measuring the rate of oxygen consumption, designed to be portable in a practical sense, is described by Jones. Mathematical procedures necessary for calculation of the rate of metabolism (from the respiratory quotient, the body area, and the rate of oxygen consumption) are eliminated from the test. The reading is made directly, in terms of calories per hour per square meter of body area. Independent and comparative tests show its technical variations to be within physiologic and individual variations, and, therefore, adequate to the needs of the clinician as an instrument for measuring basal metabolism.

Spirochetal Pulmonary Gangrene.—The presence of numerous spirochetes in the gangrenous portions of the lung in the case reported by Fishberg and Kline suggests their etiologic relationship to the lesion. The spirochetes responsible for the gangrene in this case are of the type Castellani calls *Spirochaeta bronchialis.*

Constancy of Volume of Blood Plasma.—Bock shows that the plasma volume in man, in contradistinction to the total blood volume, tends to be a physiologic constant, except under certain stated conditions. The evidence consists of data obtained by blood volume determinations in five normal and twenty-five abnormal individuals. Recovery after hemorrhage is associated with rapid restoration of plasma to the normal plasma level, provided the tissue fluid reserve is adequate. Complete restoration of the total blood volume is dependent on increase in the number of corpuscles. Overdilution of the plasma after hemorrhage has not been encountered.

Hereditary Hemorrhagic Telangiectasis.—A review of the literature on telangiectases of the hereditary type associated with familial epistaxis is given by Goldstein, and a case of hereditary telangiectasia with severe recurring nasal hemorrhages is recorded. Cases are mentioned of two married sisters, seven children and the patients' mother, all in the same family, suffering from the same disease, a total of eleven cases in one family.

Archives of Neurology and Psychiatry, Chicago

January, 1921, **5**, No. 1

*Clinical and Anatomic Study of Vascular Lesion of Both Cerebellar Hemispheres, with Especial Reference to Cerebellar Catalepsy and Nystagmus, and Anatomic Connections of Inferior Olive. W. F. Schaller, San Francisco.—p. 1.
Case of Acromegaly Associated with Brain Tumor. W. A. Bryan and S. Uyematsu, Hathorne, Mass.—p. 20.
Motor Disturbances in Lethargic Encephalitis. I. Abrahamson, New York.—p. 33.
*Oculocardiac Reflex (Dagnini-Aschner Phenomenon)—Its Use in Medicine and Psychology. S. Naccarati, New York.—p. 40.
*Phenolsulphonephthalein Absorption from Subarachnoid Space in Paresis and Dementia Praecox. P. G. Weston, Warren, Pa.—p. 58.
*False Localizing Signs of Spinal Cord Tumor. C. A. Elsberg, New York.—p. 64.

Vascular Lesion of Both Cerebellar Hemispheres.—A case is reported by Schaller in which there is a destruction of tissue in both cerebellar hemispheres with conservation of the vermis and the central vestibular system, and whose predominant symptomatology is marked dyssynergia, cerebellar catalepsy and scanning speech. Equally important from the standpoint of negative symptomatology is the absence of spontaneous nystagmus and of spontaneous errors of pointing after Bárány. The absence of nystagmus is explained by the practically intact vestibular system. This case confirms the

opinion of Wilson and Pike that rhythmic nystagmus or labyrinthine nystagmus consisting of slow and quick components is properly a symptom of vestibular disease. The symptoms of dyssynergia, dysmeteria and dysdiadokokinesia were marked and characteristic. They would tend to confirm prevalent notions regarding cerebellar symptomatology. In contrast to the above symptoms was the conservation of trunkal static equilibrium as evidenced by the ease with which this patient maintained the sitting position. Cerebellar catalepsy in this case is another example of conserved static equilibrium contrasted with disturbed dynamic equilibrium exemplified by the great incoordination in the extremities. From the anatomic standpoint, the principal findings are corroborative in general of the degenerations following cerebellar defects such as are demonstrated in cases of cerebellar lesions, animal experimentation, and particularly unilateral and bilateral agenesias of the cerebellar hemispheres. Worthy of mention, and perhaps throwing some light on the anatomic connections of the cerebellum and of the inferior olive, are the following considerations: 1. The destruction of the left restiform body may be brought into relationship with the destruction of the left dentate nucleus for the reason that the right restiform body is practically intact with an extensive destruction of both cerebellar hemispheres and conservation of the right dentate nucleus. 2. On the left side the degenerations in the central tegmental tract, circumolivary fibers, internal fibers of the olive, and Helweg's bundle seem to indicate a more or less intimate connection of these structures. 3. On account of the small tegmental lesion, which is in close vicinity to the central tegmental tract, the question must remain an open one as to whether this tegmento-olivo-spinal degeneration is dependent on it or on the cerebellar lesions. In a careful study of the serial sections representing the tegmental lesion no actual defect in the bundle could be demonstrated due to softening. This lesion probably explains the degeneration of the left median fillet which it directly involves.

Oculocardiac Reflex.—An experimental and comparative study was made by Naccarati of groups of normal and pathologic subjects. He found that this reflex is subject to individual differences and variations, as is the pulse. Since normal persons are subject to the same changes in their oculocardiac reflex, it cannot constitute a positive sign for differential diagnosis. It may serve only as an indicator of probability. The classification of the oculocardiac reflex into normal, abolished, inverted and exaggerated classes cannot be accepted on account of the extreme inconstancy of the reflex index: the same normal or abnormal subject may present a positive, a negative, and a 0 index at different times, even when the hour, position, and the amount of ocular compression are kept constant. About 40 per cent. of the normal subjects examined by Naccarati showed a reflex index of from 0 to +4. In tabes the reflex index is 0 or very small; exceptionally it surpasses three units; it shows slight variations or no variations at all when taken at different times. In general paresis the index tends to remain small, but cases showing a larger positive or negative index are encountered with much more frequency than in tabes. In the feebleminded no tendency to a large positive index (exaggerated reflex) was found, as reported by some authors. In epilepsy, although a well defined tendency toward a large positive index (vagotonic reaction) was found, it was not the rule; cases with small positive indexes, with 0 and negative indexes, were quite often encountered. Bromids did not reduce the reflex index. In thyroid states, a definite tendency was found on the part of the hypothyroid patients to react with a positive index and of the hyperthyroid patients to react with a negative index; this tendency was much more definite in hypothyroid patients. Where the reflex could be repeated at different intervals, large variations were found. Administration of thyroid extract to the hypothyroid patient seemed to produce a reduction of the index. In normal and pathologic cases, pressure over different sensitive spots of the body did not induce the changes in the pulse rate that were obtained with ocular compression. Unilateral paralysis of the second, third, fourth, fifth (motor branch), sixth, seventh, ninth, eleventh and twelfth cranial nerves did not modify the reflex to a substantial extent. Involvement of the vagus nerves greatly influenced the reflex index; involvement of the cervical sympathetic nerve caused a slight alteration of the index. Resection of the sensory branch of the trigeminal nerve produced suppression of the reflex on the side of the lesion, without influencing the reflex index of the other side. These facts substantiate the results of experiments previously reported, namely, that the centripetal pathway of the oculocardiac reflex is constituted exclusively by the sensory branch of the trigeminal nerve and that the centrifugal pathway is constituted mainly by the vagus and partially by the sympathetic nerve.

Phenolsulphonephthalein Absorption in Paresis and Dementia Praecox.—Westen injected 1 c.c. of neutral, sterilized solution of phenolsulphonephthalein having a specific gravity of 1.0061 into the lumbar subarachnoid space, and the contents of the needle were washed into the canal with 15 c.c. of previously withdrawn spinal fluid. The time of appearance of the dye in the urine was then determined. Twenty-eight cases of catatonic dementia praecox and seventeen cases of paresis were observed. Age, duration of the psychosis, physical and mental condition, so far as could be determined, had no constant effect on the appearance time. In all cases the dye was longer in making its appearance in the urine than the normal time stated by Dandy and Blackfan, six minutes, and by Mehrtens and West from four to ten minutes. In these observations the time varied from twelve to sixty-eight minutes in the case of paresis and from twenty-five to 104 minutes in the case of catatonic dementia praecox. The specific gravity of the spinal fluid varied from 1.0061 to 1.0063 in the dementia praecox group and from 1.0061 to 1.0073 in the paretic group. The hydrogen-ion concentration in all cases was 7.4 The Wassermann reaction, gold and globulin tests were all negative in the dementia praecox cases and were positive in the paretics. The dye was not found in fluid drawn from the cisterna magna at any time up to five hours after it had been injected into the lumbar subarachnoid space. The absorption of the dye took place from the lumbar region.

False Localizing Signs in Spinal Cord Tumor.—In some patients the symptoms and signs noted at repeated examinations by different examiners pointed clearly to a certain level and a definite location, but the growth was found to have entirely different relations to the cord. Elsberg has characterized these as cases with "false localizing signs." He has been impressed by the frequency with which patients with spinal tumors in the cervical region first complain of sensory and motor symptoms referable to the lower extremities. In twenty-five cases of extramedullary and intramedullary cord tumors in the cervical region, six patients stated that the first symptoms they observed were in the lower extremities; in three, weakness, stiffness and sensory disturbances preceded symptoms in the upper limbs by many months, and two of the five patients had no knowledge of any motor or sensory disturbances in their upper extremities when they were first examined.

Boston Medical and Surgical Journal

Jan. 20, 1921, **184**, No. 3

*Clinical Recognition of Various Types of Paroxysmal Rapid Heart Action. S. A. Levine, Boston.—p. 53.
Medical Complications Following Surgical Operations. W. E. Preble, Boston.—p. 57.
Balneology of Japan. H. Packard, Boston.—p. 60.
*Care of Congenital Heart Disease with Complete Auriculoventricular Dissociation Presenting Unusual Features. F. A. Willius, Rochester, Minn.—p. 64.
Report on Sixty-Four Consecutive Examinations of Duodenum in Cadaver. H. F. Aitken.—p. 67.
Conditions in Palestine During War and Medical Relief Among Civil Population and Refugees. I. Alcazar, Boston.—p. 68.
Duty of State Medical Societies. R. C. Fish, Worcester, Mass.—p. 71.

Differentiation of Paroxysmal Tachycardia.—Levine discusses how normal tachycardia can be distinguished from the paroxysmal rapid heart action and differenciates the various types of the latter where that is possible, with such simple means as all physicians have at the bedside. The points involved in the differential diagnosis are discussed and the importance of vagal stimulation as a life saving measure in rare instances is emphasized. The proper treatment of the various types of paroxysms depends on the correct differentiation of the abnormal mechanism.

Congenital Heart Disease.—Willius' patient presented a very remarkable type of complete auriculoventricular dissociation. The P wave was inverted (negative), indicating an ectopic focus of stimulus production. An auricular arrhythmia was present, apparently not influenced by ventricular activity. The P wave shows the tendency to occur sooner in each succeeding cycle. An abnormal T wave was present in Derivation II and in Derivation III. The rate of the ventricles was greater than that of the auricles.

Florida Medical Association Journal, St. Augustine and Jacksonville

January, 1921, **7**, No. 7

Medical Journals and Campaign Against Cancer. F. J. Osborne.—p. 102.
Difficulties in Diagnosing Acute Appendicitis. J. S. McEwan, Orlando.—p. 106.

Journal of Experimental Medicine, Baltimore

Jan. 1, 1921, **33**, No. 1

*Reticular Material of Developing Blood Cells. E. V. Cowdry, Peking, China.—p. 1.
*Streptococci Occurring in Sour Milk. F. S. Jones, Princeton, N. J.—p. 13.
Preparation of Collodion Sacs for Use in Bacteriology. F. L. Gates, New York.—p. 25.
*Mechanical Measuring Instrument for Sterile Liquids. F. L. Gates, New York.—p. 45.
Factors Influencing Anaerobiosis, with Special Reference to Use of Fresh Tissue. F. L. Gates and P. K. Olitsky, New York.—p. 51.
Preservation of Stock Cultures of Bacteria by Freezing and Drying. H. F. Swift, New York.—p. 69.
*Quantitative Distribution of Particulate Material (Manganese Dioxid) Administered Intravenously to Cat. C. K. Drinker and L. A. Shaw, Boston.—p. 77.
Study of Classification of Meningococci. A. B. Wadsworth, R. Gilbert and A. Hutton, Albany.—p. 99.
Comparison of Potency of Polyvalent Antimeningococcus Serum Produced with Four and Six Representative Strains and That Produced with Sixty Strains, as Determined by Agglutination Titer. A. B. Wadsworth, Albany.—p. 107.
Purification and Concentration of Antigens for Complement Fixation by Methods of Dialysis, Adsorption and Extraction. A. B. Wadsworth and F. Maltaner, Albany.—p. 119.

Reticulum in Blood Cells.—Erythroblasts, leukocytes and lymphocytes, Cowdry says, resemble other cells of the body in containing a restricted area of fluidity in their cytoplasm. In special preparations this fluid appears in the form of a more or less complicated reticulum which seems to be continually but slowly changing in shape. For convenience, the fluid may provisionally be referred to as reticular material, emphasis being laid on its composition rather than its form. As a working hypothesis it is safe to assume that the chemical and physical properties of this material vary in cells of different kinds as well as in different stages in the activity of the same cell. The conclusion that it is "identical" in different cells, because the present crude methods of technic reveal no fundamental differences, would be as incorrect as the statement that the serum of different animals is identical, because no difference is observed on microscopic examination.

Streptococci in Sour Milk.—A well defined group of rod-like and coccoid organisms arranged in pairs and chains has been encountered by Jones in sour milk. The group comprises at least three species; the largest number ferment dextrose, lactose, maltose, mannitol and salicin, and fail to ferment saccharose, raffinose, and inulin. A smaller number ferment saccharose in addition to dextrose, lactose, maltose, mannitol and salicin. A few fail to attack mannitol. All three types grow luxuriantly at room temperature, coagulate milk, reduce litmus, and produce large amounts of acid in fermented bouillon containing dextrose.

Measuring Sterile Solutions.—An instrument is described by Gates by which aliquot portions of a liquid may be mechanically measured and delivered. It was devised especially for use in immunologic experiments, to take the place of a graduated pipet in setting up serum tests.

Quantitative Distribution of Particulate Material.—The experiments reported on by Drinker and Shaw, coupled with correlative results by other investigators, make it clear that in certain organs—the lungs, liver and spleen of the cat—the vascular endothelium possesses phagocytic power rendering the capillaries permeable to particulate material as well as to gases, liquids and dissolved substances.

New York State Journal of Medicine, New York

January, 1921, **21**, No. 1

State Medical Legislation. Its Effect on the Public and the Profession. The Health Centers Bill of 1920. E. L. Hunt, New York.—p. 1.
Need of Health Centers. E. V. Delphey, New York.—p. 3.
State Board of Health. H. M. Biggs, New York.—p. 6.
Impending Public Health Legislation. H. L. Winter, Cornwall.—p. 9.
*Roentgen-Ray Treatment of Tonsils and Adenoids. W. D. Witherbee, New York.—p. 14.
Paraspecific Therapy in Severe Ocular Infections. B. Witt Key, New York.—p. 18.

Roentgen-Ray Treatment of Tonsils and Adenoids.—Witherbee reports his results from the use of the roentgen ray in the treatment of hypertrophied tonsils in about sixty cases. The exposure is made over an area of which the angle of the jaw forms the center. Good results are reported. Only two exposures are necessary in each treatment, and the maximum dose used is 1¾ skin units of filtered ray. Each exposure was given for from three to seven minutes, depending on the age of the patient.

Northwest Medicine, Seattle

January, 1921, **20**, No. 1

Acute Abdomen. R. C. Coffey, Portland.—p. 1.
Some Experiences with Perforation of Stomach. C. R. Mowery and H. C. Mowery, Wallace, Idaho.—p. 7.
Intestinal Stasis. G. F. Koehler and D. Palmer, Portland, Ore.—p. 10.
Cecal Pathology. W. D. Read, Tacoma, Wash.—p. 11.
Laboratory as Aid to Diagnosis in Gastro-intestinal Diseases. M. M. Null, Seattle, Wash.—p. 13.
*Pituitary Polyuria or Diabetes Insipidus. K. Winslow, Seattle, Wash.—p. 16.

Pituitary Polyuria.—Winslow reports two cases of diabetes insipidius in which treatment with a pituitary extract gave immediate and favorable results. One of the patients had had encephalitis four months previously and the author ascribes the polyuria to involvement of the pituitary gland by the encephalitic process. In the second case the onset was slow and except for a chronic tonsilitis, pyorrhea and abscessed teeth, no abnormalities were present. The pituitary extract was given daily, 1 c.c. to the first patient and 0.5 c.c. twice daily to the second.

Surgery, Gynecology and Obstetrics, Chicago

January, 1921, **32**, No. 1

Restoration of Shoulder Function in Cases of Loss of Head and Upper Portion of Humerus. F. H. Albee, New York.—p. 1.
*Operative Treatment of Infantile Paralysis. R. W. Lovett, Boston.—p. 20.
*Carcinoma of Prostate. H. C. Bumpus, Rochester, Minn.—p. 31.
Urinary Calculus at Canton Hospital. J. O. Thomson, Canton, China.—p. 44.
*Placenta Praevia. G. L. Brodhead and E. G. Langrock, New York.—p. 55.
Papillary Adenocystoma of Ovary of Psammocarcinoma Type. R. H. Miller and L. E. Viko, Boston.—p. 59.
Compressive Trauma as an Entity. P. W. Nathan, New York.—p. 62.
*Result and Feasibility of Treating Lymphangiomas with Injections of Boiling Water. F. Reder, St. Louis.—p. 70.
Diathermy in Some Bone Lesions. A. B. Hirsh, New York.—p. 74.
Bilateral Renal Dystopia. Report of Case. H. W. E. Walther, New Orleans.—p. 82.
*Treatment of Suppurating Wounds Following Abdominal Section. T. J. Watkins, Chicago.—p. 87.
*Saving Suppurating Incisions. H. A. Royster, Raleigh, N. C.—p. 90.
Resection of Clavicle to Accomplish Coaptation of Divided Brachial Plexus. H. M. Richter, Chicago and K. L. Vehe, Cheney, Wash.—p. 92.

Operative Treatment of Infantile Paralysis.—Paralysis or weakness of the gluteus medius or gluteus maximus muscles, Lovett says, causes two forms of lameness, which are primary in their importance and are too often neglected while attention is diverted to more serious defects lower down, which are really secondary in importance. He urges that in each case the patient's gait be examined thoroughly and carefully with a view as to ascertaining just which muscles cause the lameness. Paralysis of the hip flexor muscles and abdominal paralysis are also frequent causes of lameness. Lovett points out that all operative procedures should be undertaken only after a careful study of the gait, that is of the case as a whole, and that operations on the thigh and leg should not be undertaken in the presence of severe involvement of the hip and abdominal muscles, without warning the parents, or the patient, that the hip and abdominal lameness will not be affected materially by the remedy of the condition below.

Lovett deprecates especially the performance of serious structural operations on the foot when the chief cause of the limp lies in the muscles of the hip and abdomen. These operations may well be necessary and if so should be performed, but not with the expectation of remedying a limp of which they are not the cause.

Carcinoma of Prostate.—In the 362 cases of carcinoma of the prostate analyzed by Bumpus metastasis was found in 79, 21.8 per cent.; in 37, 10.2 per cent., the glands were involved. He is of the opinion that metastasis to the glands probably occurs more frequently in cases of carcinoma of the prostate than is demonstrable clinically because of the inaccessibility of the glands first involved. One-third of the patients with carcinoma of the prostate have osseous metastasis demonstrable by the roentgen ray. The pelvis and spine are the most frequent sites of osseous metastasis. Metastasis occurs rarely in the lungs, probably never without involvement elsewhere. Metastasis to the spinal cord from carcinoma of the prostate closely simulates primary cord tumors and often occurs when the prostate is but slightly enlarged. Pain is absent in one-fourth of all cases with metastasis. Urinary symptoms are absent in 11.5 per cent. of all cases with metastasis. Neuralgic and rheumatic pains in men above middle age, even in the absence of urinary symptoms, should suggest the possibility of carcinoma of the prostate.

Placenta Praevia.—One hundred cases are analyzed by Brodhead and Langrock. There were 58 marginal praevias (10 in primiparas, 47 in multiparas): 25 of cerebral type (6 in primiparas, 16 in multiparas); 12 lateral praevias (1 in primiparas, 11 in multiparas); and there were 5 of unknown type. There were 9 maternal deaths.

Treating Lymphangiomas with Boiling Water Injections.—Eight patients so treated by Reder have been benefited, but in none has the tumor disappeared. As a lymphangioma favors an inflammatory invasion on very slight pretense Reder warns that any measure for its cure or palliation, be this measure boiling water or a chemical irritant, must be instituted with great risk and with a thorough understanding of the probable clinical course the measure might excite in the tumor, fostered by a courage ample to meet any disappointment.

Treatment of Suppurating Laparotomy Wounds.—In the treatment which Watkins has adopted, no sutures are removed until the wound is healed, unless it becomes necessary on account of extensive cutting of the sutures into the tissues; no drainage is inserted; no probing is permitted. Moist dressings are kept continuously over the wound as long as it remains reddened or indurated. Care should be exercised, however, not extensively to macerate the parts with moist dressings. The value of moist dressings consists almost entirely in preventing desiccation of the secretions and thus in favoring drainage. A large amount of drainage can efficiently take place through a small opening when thus treated. Watkins generally employs a solution of boric acid for the purpose of preventing decomposition. The use of antiseptics, irrigations and drains materially injuries the delicate tissue-repair present in healing wounds. Important features of this treatment of infected abdominal wounds are that no pain is inflicted and that the patient is very little disturbed mentally by the presence of infection, as one can give assurance that the suppuration is of minor importance. The question of systemic treatment of patients with infected abdominal wounds is not presented for discussion in this paper.

Saving Suppurating Incisions.—Through a small stab wound, Royster empties the pus cavity by pressure on each side. When the small cavity is emptied a quantity (equal in amount to the pus removed) of a 10 per cent. melted iodoform-vaselin ointment is introduced by means of a glass syringe. This distends the cavity, fills the interstices, and solidifies on cooling. A cold wet compress is immediately applied over the whole area, and an ordinary dressing over this. As a rule, the wound is not disturbed for four days, when on removing the dressing the incision and the suppurating area will be found clean and intact. Slight pressure will cause any excess of ointment to exude and another cold compress may be put on. If before the fourth day a discharge be noted through or around the dressing, the wound again may be emptied by pressure and a second injection of the ointment made. The only advantage of the iodoform is said to be its odor, which counteracts that of the colon bacillus in the pus. In this type of cases it is superior to bismuth. It is admitted that simple vaselin would be sufficient in many instances, except for the absence of deodorizing qualities.

West Virginia Medical Journal, Huntington

January, 1921, **15**, No. 7

Pre-Operative Localization of Acute Appendix. R. J. Reed, Wheeling.—p. 241.
Plea for Normal Appendix; Its Physiology as Viewed from a Surgical Point. H. G. Nicholson, Charleston.—p. 244.
Two Hour Test for Renal Function. C. G. Willis, Huntington.—p. 246.
Report of Case of Vaginal Septum and Bicornate Uterus. H. G. Steele, Bluefield.—p. 249.
Paper Read Before Eastern Panhandle Medical Society. W. Neill, Charlestown.—p. 250.
B. J. Palmer, Chiropractor. F. F. Farnsworth, Charleston.—p. 252.
Report of Committee on Nursing. L. V. Guthrie, Huntington.—p. 255.
Hernias of Ovary, of Fallopian Tube, and of Ovary and Fallopian Tube. A. P. Heineck, Chicago.—p. 259.
Epilepsy a Symptom of Splanchnoptosis. C. A. L. Reed, Cincinnati.—p. 266.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Edinburgh Medical Journal

January, 1921, **26**, No. 1

*Congenital Hypertrophy of Pylorus. J. Thomson.—p. 1.
Medical Education, Legislation and Practice in the United States. N. Walker.—p. 21.
Influence of Trauma on Distribution of Psoriasis. W. D. D. Small.—p. 51.
Case of Idiopathic Tetanus. R. A. Fleming.—p. 53.

Congenital Hypertrophy of Pylorus.—One hundred consecutive cases of congenital pyloric hypertrophy are analyzed by Thomson. Fifty-eight cases ended fatally; forty-five were examined postmortem. The subjects specially dealt with comprise the family history and complications, the causation of the muscular hypertrophy and of the symptoms, the natural course of the disease under medical and surgical treatment, the symptoms and choice of treatment in different types of the disease, the diagnosis, especially that between pyloric hypertrophy and the so-called "pyloric spasm," the difference in the prognosis in hospital and private cases, and the subsequent health of the patients who recover.

Indian Medical Gazette, Calcutta

December, 1920, **105**, No. 12

*Prevalence in India of Gastric and Duodenal Ulcer and Allied Conditions of Upper Abdomen. Diagnosis and Treatment. W. J. Wanless.—p. 441.
*Blood Pressure During Intravenous Injection of Quinin in Treatment of Malarial Fever. U. N. Brahmachari.—p. 447.
Field Ambulance Organization. H. V. Thompson.—p. 448.
*Rupture of Spleen. P. H. Hennessy.—p. 452.
Cutaneous Myiasis in Man and Animals in India. W. S. Patton.—p. 455.
Case of Acute Catarrhal Jaundice. A. B. DeCastro.—p. 456.

Gastric and Duodenal Ulcer in India.—Prominent among the chronic conditions of the upper abdomen prevailing in India, Wanless says, is gastric and duodenal ulcer, a disease which fifteen years ago was not thought to be particularly prevalent in India. Up to the end of 1919, 591 cases of gastric and duodenal ulcer were operated in the Miraj Hospital. These facts, together with the now frequent performance of gastro-enterostomy reported from almost every part of India, are sufficient to establish the fact of a widespread incidence of gastric and duodenal ulcer in India. The irritating causative agent in the development of ulcer is, Wanless claims after all, not the character of the food itself, but much more likely the excessive stimulation produced by the ingestion of hot curries taken in conjunction with poorly cooked and inadequately masticated food. The average dirty septic mouth so commonly observed in India must be regarded as an ever-present source of potential focal infection provocative of gastric ulcer and other intestinal disorders. The presence of lime in the mouth of the beetle-nut chewer may exert an antiseptic influence in these septic mouths which inhibit

bacterial growth, albeit the lime is itself an exciting factor in the development of buccal cancer. Alcohol, once thought to be a factor in the etiology of gastric ulcer, cannot be so regarded in the case of Indians, comparatively few of whom, in the villages at least, are addicted to its excessive use.

Blood Pressure During Intravenous Injection of Quinin.—During attacks of malarial fever, Brahmachari says, the blood pressure is generally low, especially in the pernicious type of the case. Intravenous injection of quinin in concentrated solution (10 grains to 20 c.c.) is generally followed by a fall in blood pressure and sometimes by a disappearance of the pulse for a few seconds. Intravenous injection of quinin in dilute solution (10 grains in 200 c.c.) may be followed by a fall in blood pressure, but it is neither so sudden nor so great as in the case of concentrated solutions. In many cases there is no fall of blood pressure. The slower the injection is given, the less is the chance of fall of blood pressure taking place. The lowered blood pressure after intravenous injection of quinin may persist for twelve hours or more after the injection. Brahmachari states that intravenous injections of quinin should always be given in very dilute form (1 to 300). The injection must be given at the rate of 10 c.c. every minute, and while making frequent careful blood pressure observations during the operation and guarded by administration of pituitary or epinephrin and the application of tight bandages over the extremities.

Rupture of Spleen in India.—During the five years from 1915 to 1919, 151 cases of rupture of the spleen were officially recorded from the four Federated Malay States-Perak, Selangor, Negri Sembilan and Pahang. Hennessy believes that it is more than likely that these figures understate the actual occurrence of this fatal condition. The average annual return for these years indicates that thirty persons at least have been in danger of death from this accident. Malarial fever is indirectly responsible for the large number of cases. Hence the figures for rupture of the spleen in any one place vary directly as the prevalence of malarial fever. Eight cases are analyzed briefly by Hennessy. In the few cases which he has been able to keep in sight, there have been no ill effects.

Journal of Laryngology and Otology, Edinburgh

January, 1921, **36**: No. 1

*Chorditis Fibrinosa. A. B. Kelly.—p. 5.
*Angeioma of Larynx. I. Moore.—p. 11.
Infection of Middle Ear and External Auditory Meatus, with Vincent's Organisms. W. Wingrave and A. Ryland.—p. 27.

Chorditis Fibrinosa.—Attention is directed by Kelly to an uncommon variety of acute laryngitis characterized by the deposition of fibrin and the occasional formation of erosions on the vocal cords. All of his cases (113) occurred in soldiers, and neither before the war nor since two months after the armistice has he met with a case of the kind. The affection is rare among civilians. The condition apparently is caused by certain noxious agents. Owing to exceptional factors, particularly shouting and rapid respiration, a damaging effect is produced especially on the vibrating part of the cord, and necrosis of the superficial epithelium results. A fibrinous exudation representing the process of repair takes place over the area so destroyed. The extent of both the necrosis and the resulting fibrinous deposit corresponds presumably to the severity of the process. The inflammation is limited to the true cords, the ligamentous portions of which have suffered specially owing to excessive vibratory movement.

Angeioma of Larynx.—Moore has traced seventy-three cases of laryngeal angeioma in the literature. A synopsis is given of each case and the clinical history of the condition is discussed.

Lancet London

Jan. 8, 1921, **1**, No. 2

*Use and Misuse of Curet. W. E. Fothergill.—p. 59.
*Carbuncles. S. Phillips.—p. 61.
Tabes: Early Recognition and Treatment. E. F. Buzzard.—p. 65.
Difficult Cases of Infant Feeding and Management. R. Vincent.—p. 67.
*Diabetes Insipidus Complicated by Intermittent Glycosuria. G. Evans and R. L. M. Wallis.—p. 70.
Cultural Diagnosis of Enterica in Inoculated Individuals. J. C. G. Ledingham.—p. 72.
Treatment of Crippling Disabilities of Children. G. R. Girdlestone.—p. 74.
Osteitis Deformans? F. Romer.—p. 77.

Use and Misuse of Curet.—Admitting that there is still much futile curetting, Fothergill says that the pendulum has swung too far against a useful instrument. As to the use of a large curet for emptying and cleaning the uterus infected either postpartum or postabortum, he states that if this is done before the pathogenic organisms have entered the blood stream, the result is generally excellent. The cleansing of the uterine cavity should, of course, be completed with fairly dry swabs, and not by intra-uterine douching, which sometimes forces septic material and irritating antiseptic solutions up through the tubes into the peritoneal cavity with disastrous results. The dry cleaning should not be repeated, and no subsequent intra-uterine or vaginal douche is desirable. Once emptied and swabbed, not swilled, with an efficient concentrated antiseptic, the uterus is best left alone. The discovery of retained products of conception and their removal from the uterus, remain, in spite of all that has been said to the contrary, sound and common uses for the curet. And these include subinvolution, in which the removal of an unduly persistent layer of decidual tissue is often an essential step in the treatment. The dilator and the curet are essential for the discovery of mucous and small fibroid polypi, of malignant disease within the cervical canal and uterine cavity, and of the results of infection superadded to postmenopause changes known as "senile hemorrhagic endometritis." Except in malignant cases, they provide the treatment as well as the diagnosis. The rule should be, curet in metrorrhagia but not in menorrhagia. When the cervix is to be amputated or repaired, it must first be dilated in order to gain working room for suturing. Again, it is wise to make sure that all is well within the uterus before so narrowing the vagina as to render access to the uterine cavity very difficult thereafter. Polypi are often found and removed during the preliminary scraping, and early malignant disease of the body of the uterus is discovered from time to time. The dangers of curettage are pointed out.

Carbuncles.—In Phillips' opinion operation is advisable in the following circumstances: (1) Where the sloughing process is very deep seated, perhaps under the fascia, and the inflammatory effusion is much obstructed in extending toward the surface. (2) Certain carbuncles, though not large, may be deep seated and the slough may be very tough and thick; the process is subacute, the surrounding inflammation is not intense, and the amount of pus may be small. The opening formed in the skin may be single and very small at first, enlarging only very gradually; this, and the toughness of the slough and its depth, often imprison the small amount of pus there is beneath the slough. (3) Incisions to enlarge spontaneously formed openings in the skin or throwing them together are often useful as assisting discharge of slough and in accelerating healing. (4) Operation is sometimes required when final healing is prevented by tough bundles or bands of fibrous tissue which have resisted the sloughing process. (5) If either of the first two conditions have led to opening a carbuncle by operation it is well to apply pure phenol at the same time, but it is not desirable to incise a carbuncle otherwise progressing favorably in order to use phenol.

Diabetes Insipidus with Glycosuria.—The most constant and important signs of disease shown by the two patients whose histories are reported by Evans and Wallis were polyuria and the secretion of urine of low specific gravity. Chemical examination of the urine, microscopic examination of its deposit, and clinical examination of the cardiovascular system ruled out renal disease or disease of the nervous system as a cause of the abnormal condition of the urine. Neither patient showed any very obvious sign of pituitary disease, but in spite of this, on the strength of the general evidence the authors believe it is justifiable to diagnose both cases as pituitary dystrophies. One patient had an enlarged sella turcica and the second patient's lower jaw was underhung, the skull dolichocephalic, and there was dorsal kyphosis; hirsuties was marked. Both patients made chief complaint of headache and definite complaint of lassitude. The authors believe that cases of this type have not been previously recognized.

Practitioner, London

January, 1921, **106**, No. 1

Treatment of Acute Nasal Sinusitis. S. Thomson.—p. 1.
Chronic Catarrhal Otitis Media. W. Milligan.—p. 9.
Venereal Diseases as We See Them Today. J. E. R. McDonagh.—p. 18.
*Treatment of Gonorrhea in Women. R. Hobbs.—p. 31.
Recent Progress in Gynecology. F. J. McCann.—p. 43.
Some Mistakes and Their Lessons. C. H. Whiteford.—p. 54.
Plea for Compulsory Appreneticeship. E. F. Pratt.—p. 63.
Theories of Malaria. M. D. O'Connell.—p. 69.

Treatment of Gonorrhea in Pregnant Women.—In cases of gonorrhea complicating pregnancy, it is generally held that treatment of the cervix is contraindicated by the risk of miscarriage, unless the circumstances are very exceptional, and there is no doubt that under improper or unsuitable treatment this risk is a real one. Experience leads Hobbs to hold that there is greater risk of miscarriage from the infection of the endometrium than from properly applied treatment to the cervix. It is not only safe to treat the cervical canal, but decidedly in the patient's interest to do so. In addition to the treatment of the vagina and urethra, a small tampon saturated with equal parts of iodin and glycerin is introduced into the cervical canal and left in for one hour. This is repeated every fourteen days until the cervical secretion looks normal and the smears are negative. The treatment has been carried out as late as the eighth month of pregnancy. Up to the present no uterine contractions have resulted, and the vagina and its secretions have become normal.

Tubercle, London

January, 1921, **2**, No. 4

*Heredity in Tuberculosis. A. Adams.—p. 145.
*Symptoms and Course of Tuberculous Meningitis in Adult Consumptives. C. Holten.—p. 150.
*Syphilis as Predisposing Cause of Laryngeal Tuberculosis. E. Morton.—p. 156.

Heredity in Tuberculosis.—The matter of heredity in tuberculosis was looked into by Adams, and the records of 1,000 patients admitted to a sanatorium were analyzed. The relatives looked up embraced grandparents, uncles, cousins and children, and where any doubt existed as to definite disease, all chest conditions were included among the tubercular to counteract any error arising from lack of knowledge. Over 60 per cent. gave no family history. The percentage of patients who failed to respond to treatment was less among those with history than those without. The gravity of the history made little difference. In the very greatly improved group, the results also are in favor of those with a history. Adams asks: "If civilization means syphilization, does it not also denote tuberculization? How rarely does one see today the acute onset and progress with the severe hemorrhages, etc., formerly described and feared; and it is very improbable that this result is all due to improved treatment. The death rate from tuberculosis for many years past has shown a steady decline until the recent war period, when a small rise occurred, probably due to overcrowding in houses and factories, overwork and worry, and insufficient dict—all results of the war. Is it not most probable that the decrease is largely due to an acquired or hereditary immunity which is steadyily raising our resistance to the onset and course of the disease, and that the cases of tuberculous families which undoubtedly exist are only examples of massive infection during infancy and childhood in which the resistance is overcome?"

Tuberculous Meningitis in Adults.—In the course of ten years, thirty cases of tuberculous meningitis were observed by Holten in persons over the age of 16. In fourteen cases the diagnosis was confirmed by postmortem examination. Twelve of these patients were in the third stage, and the remaining two in the second stage of pulmonary tuberculosis. While the clinical picture in children is fairly classical, Holten says this is not the case in adults. The symptoms may be vague, and the whole course of the disease ill-defined. In one case, the most prominent symptom was drowsiness and the duration of the meningitis was only about eleven days. Only in one case were there spasmodic contractions of the legs, accompanied by considerable restlessness. Convulsions were never seen, and in no case did motor aphasia occur; nor was hemiplegia ever seen. Such focal symptoms as squint were observed twice. As a rule, the patients did not lose consciousness till near the end, but in a few cases partial loss of consciousness was the first symptom. Headache was the most constant symptom, and, Holten says, meningitis should always be suspected when a consumptive complains of persistent headache. Vomiting was a common symptom. The symptom which dominates the clinical picture after the disease is well developed is drowsiness. In some cases the terminal stage of toxemia in pulmonary tuberculosis may evoke a clinical picture indistinguishable from that of tuberculous meningitis without the aid of lumbar puncture.

Syphilis Predisposes to Laryngeal Tuberculosis.—In eight of ten cases of phthisis complicated by laryngitis, in which tubercle bacilli had been demonstrated in the sputum, A positive Wassermann reaction was obtained by Morton. The Wassermann reaction was tested in a control series of ten cases of pulmonary tuberculosis. An average of 10 per cent. had a positive Wassermann, as compared with the 80 per cent. in the laryngeal group. Therefore, Morton concludes that a syphilitic soil acts as a predisposing cause of laryngeal tuberculosis.

Archives des Maladies du Cœur, etc., Paris

October, 1920, **13**, No. 10

Instability of Blood Pressure with Aortic Stenosis. L. Gallavardin and A. Devic.—p. 433.
*Second Pulmonary Sound in Carditis. G. Turrettini.—p. 440.
Measurement of Pressure in Temporal Artery. P. Baillart.—p. 445.
*Chronic Hemorrhagic Purpura. Roubier and Richard.—p. 448.

Modification of Second Pulmonary Sound with Carditis.—Turrettini ascribes considerable importance to the metallic resonance of the second pulmonary diastolic sound at the third left interspace. It was pronounced in three cases of articular rheumatism described, and it gave warning of the involvement of the endocardium in the disease process. It seems to occur only when the infection spreads to the heart by way of the vessels and lymphatics, those which surround the base of the pulmonary artery. It does not appear when infection is propagated from the pleura. In a case of tuberculous pericarditis and one of cardiorenal disease, this *éclat clangoreux* was pronounced.

Chronic Purpura.—Roubier and Richard present an instance of chronic hemorrhagic purpura in a young woman cured by three injections of serum from a sister's blood. The profuse hemorrhages stopped at once after the first familial serum injection of 10 c.c., but six injections were given in all in the course of sixteen days, in amounts ranging from 10 to 18 c.c. The last injection was followed by a chill which kept up for fifteen minutes, and then the temperature ran up to 39.4 C. and there was vomiting. After this she gradually recuperated. The hemorrhagic purpura had developed without known cause, and had proved rebellious to all other treatment for two months before this familial serotherapy was applied. There was no history of hemophilia in the family, and the young woman was nearly exsanguinated before the sister's serum was tried.

Archives de Médecine des Enfants, Paris

January, 1921, **24**, No. 1

*Periodic Vomiting with Acetonemia. A. Marfan.—p. 5. Cont'd.
*Migraine in Children. J. Comby.—p. 29.
*Progressive Degeneration of Lenticular Nucleus. J. Comby.—p. 50.

Periodic Vomiting with Acetonemia.—Marfan remarks that the intervals between the recurring attacks of vomiting may be for weeks, months or years, and that there is very seldom any regularity about them. Gruère of Dijon published the first description in 1840, but Marfan states that he was the first to call attention (1901) to the acetonemia as a constant element in the clinical picture, possibly preceding the vomiting and hence not referable to inanition. He also pointed out a familial tendency, and that this vomiting with acetonemia may develop in the course of some other malady, and obscure the diagnosis. The primary cause he has long affirmed is not in the digestive tract but in some primary metabolic disturbance entailing the acetonemia. In the few cases that have come to necropsy, the fatty degeneration of the liver and other signs of violent acute intoxication resem-

bled those of chloroform poisoning. In a family attended by d'Oelsnitz at Nice, four of the children have had this periodic vomiting with acetonemia, and two have died in connection with the attacks, the acetonemia complicated with hematuria and convulsions. Marfan has three patients who have been under observation for more than ten years who never had but the one typical attack. Between the ages of 2 and 6 the attacks are most frequent and most severe. After 6 the frequency and intensity decline, and the age of 12 seems to be the final limit, no attacks later than this occurring. He knows of one instance however where they kept up to the age of 14, but very mild. Among sixty adults known to have been subject to periodical vomiting with acetonemia during childhood, four have attacks of migraine; two young women have had gallstone colic after marriage, and one man of 27 has developed diabetes. During the attacks the urine contains large amounts of ketone bodies, but during the intervals it seems to be normal. The attacks of vomiting may alternate with attacks of asthma, or with transient fever or somnolence —all with pronounced acetonemia or with convulsions, with stupor and sometimes meningitic symptoms. One child of 18 months developed convulsions after the attack of vomiting, with somnolence or coma keeping up for a week, and leaving flaccid paralysis for over a month. This child later had recurrence of the vomiting and acetonemia.

Migraine in Children.—Comby emphasizes the hereditary nature of migraine in children, and that it is by no means rare, affecting both boys and girls. There is always photophobia. In some of fifteen cases under the age of 15 he describes in detail, the first known attacks were at the age of 2 to 12 months. The attacks sometimes are very severe, with fever and other symptoms, but perfect health during the intervals is a characteristic feature. Treatment should aim to ward off inciting causes. Such children are nervous, and country life, a boarding school in the country, brief hot or cold douches, and potassium bromid, morning and at bedtime, have all proved useful. When a child develops migraine there is reason to fear gout, asthma, diabetes or gravel in later life. Perhaps migraine in some cases may prove to be a manifestation of anaphylaxis to some article in the diet, eggs, chocolate, etc. He has known instances of migraine developing as the children outgrew the tendency to periodical vomiting with acetonemia.

Progressive Lenticular Degeneration.—Comby analyzes recent literature on Wilson's disease, and comments on the solid basis already acquired. Disease of the striate body has been definitely proved to entail involuntary movements, tremor, etc., and contractures, dysphagia, dysarthria and exaggeration of the physical emotional responses, but there is no sensory, reflex or paralytic disturbance.

Bulletin de l'Académie de Médecine, Paris

Dec. 28, 1920, 84, No. 40

*Malarial Encephalomyelitis. G. Marinesco.—p. 369.
*Cancer of Uterine Cervix. J. L. Faure.—p. 376.
*Pathogenesis of Migraine. Rémond and Rouzaud.—p. 379.

Encephalomyelitis of Malarial Origin.—The young woman was brought to Marinesco's service with symptoms indicating a pronounced myoclonic type of encephalomyelitis. On raising the trunk for lumbar puncture, the tremor and jerkings and respiration all ceased. Under artificial respiration, she recuperated, but the pulse was very weak, and death occurred the twenty-fifth day from the first symptoms, which had been fever and malaise. Necropsy revealed hematozoa in the blood, including one crescent. The hematozoa were found also in brain, medulla and spinal cord, while the cerebellum seemed to have escaped.

Cancer of Uterine Cervix.—Faure has been preaching for twenty-five years the necessity for abdominal hysterectomy when cancer of the cervix is diagnosed, and declares that this is perhaps the most curable of all forms of cancer. More than 50 per cent. of his 71 patients treated in this way have been free from recurrence to date. The interval since in 16 has been from six to twelve years and in the others from one to six years. In the cases seen early, the permanent cures amount to 88.24 per cent. and even in the most advanced cases to 26.66 per cent. For several years he has been giving radium exposures to supplement the operation, but has been astonished to find that recurrence followed in 50 per cent. of the 44 given radium treatment while there was recurrence only in 39.14 per cent. of 23 not thus exposed.

Pathogenesis of Migraine.—Rémond and Rouzaud found evidences of both liver and kidney insufficiency in examining the urine of eighteen women and twenty-four men during the intervals between attacks of migraine. They reason from this that migraine is the manifestation of intoxication progressively increasing until it reaches a crisis, the toxic action affecting the sympathetic and vasomotor nervous systems.

Bulletins de la Société Médicale des Hôpitaux, Paris

Nov. 26, 1920, 44, No. 36

*Gastric Ulcer with Kidney and Liver Lesions. C. Gandy.—p. 1423.
*Cerium Salts in Treatment of Tuberculosis. L. Rénon.—p. 1425; Id. H. Grenet and H. Drouin.—p. 1427.
Degeneracy of Corpus Callosum in Chronic Alcoholism. Laignel-Lavastine.—p. 1432.
*Autochthonous Pernicious Malaria. Brulé, May and Lermoyez.—p. 1436.
Febrile Psoriasis with Psychosis and Endocarditis. Pierre-Kahn.—p. 1440.
*Short Form of Slow Malignant Endocarditis. N. Fiessinger and H. Janet.—p. 1443.
Acute Peritonitis Simulating Enteritis. A. Bergé and J. Roberti.—p. 1450.

Association of Kidney and Liver Lesions with Gastric Ulcers.—Gandy recalls that twenty years ago he published an article calling attention to derangement of kidney or liver functioning or both as an important factor in the toxemia which he regards as responsible for the histologic process of hemorrhagic necrosis that we recognize as simple ulcer of the stomach. Le Noir, Richet and Jacquelin's recent report of five cases showing this association in a pronounced form, was read at a preceding meeting.

Cerium Salts in Treatment of Tuberculosis.—Rénon reports further experience with the rare earths in the treatment of local tuberculosis, all confirming the extreme leukocytosis and mononucleosis and the local and general improvement which they induce for a time, possibly for several months; but then comes a stationary phase. The lesions do not progress to a complete cure. In some of those treated during the nine months of his experiments no action from the drug was apparent. Grenet and Drouin assume that this peculiar mononucleosis promotes the development of connective tissue, activating fibrogenesis. They have recently been using these cerium salts in a lipoid solution by subcutaneous injection. The action of these salts on the bacilli, modifying the fats and altering the shape in vitro is beyond question, they say, but their therapeutic application is still only in the tentative stage. Their previous research was mentioned editorially, July 24, 1920, p. 246.

Malignant Malaria in France.—The autochthonous malignant tertian malaria had developed at Paris, following treatment with neo-arsphenamin. Although the onset was grave, the cure was soon realized under quinin.

Slow Malignant Endocarditis.—In the two cases reported by Fiessinger and Janet the streptococcus isolated was not of the viridans type. The first patient, a man of 24, died in less than two months from the first symptoms; the other in three months. In both, death was evidently due to mechanical factors from insufficiency of the left ventricle. In the first case intense headache was one of the earliest symptoms, and kept up to the end, although not quite so severe toward the last. It was relieved by lumbar punctures. The headache was as intense as with purulent meningitis, but the physical signs were those of slight meningism, and necropsy revealed merely diffuse congestion and generalized edema in the brain centers.

Encéphale, Paris

November, 1920, 15, No. 11

Pathologic Anatomy of the Nerve Centers in a Cretin with Myxedema. P. Marie, C. Trétiakoff and E. Stumfer.—p. 601.
Simulation, Supersimulation. R. Mignot.—p. 609.
"Voices" and Hallucinations. P. Querey.—p. 618. Conc'n in No. 12, p. 671.
Case of Genitoglandular Dystrophy. A. Prince and Staub.—p. 626.

December, 1920, 15, No. 12

Aphasia and Psychology of Thought. R. Mourgue.—p. 649. Cont'd.
Diagnosis of Atypical Psychopathic States. P. Courbon.—p. 665.
*Eschars and Atrophy of the Brain in Dements. H. Damaye.—p. 680.

Eschars and Atrophy of the Brain.—Damaye says that in his fifteen years of research on the pathologic anatomy of mental disease, he has been impressed by the fact that when the brain of a dement was found of normal size there was never any tendency to production of eschars on the buttocks or heels. On the other hand, this tendency was always pronounced when the brain showed signs of atrophy, if the patient had been bedridden for a time before death.

Journal d'Urologie, Paris

September, 1920, **10**, No. 3

Diagnosis of Condition of Neck of Bladder and of Posterior Urethra. L. Buerger (New York).—p. 169.
*Kidney Functioning After Prostatectomy. R. Darget.—p. 197.
*Reconstruction of Neck of Bladder. A. B. Aach.—p. 203.
Traumatic Lesions of Part of Bladder Wall. R. H. Kummer.—p. 211.
Polycystic Kidney with Calculi; Two Cases. V. Richer.—p. 219.
Calculi in Kidney Diverticula. R. Cassanetto.—p. 223.

Changes in Kidney Functioning After Prostatectomy.—Darget analyzed the twenty-four hour urine after prostatectomy in eighteen cases, recording the urea in the blood and the blood pressure, before and after the operation, and comparing them with the outcome later. They show that severe symptoms showing malfunction on the part of the kidneys may retrogress completely after the prostatectomy, but that this cannot be expected when the blood pressure is high. This reveals that the heart is malfunctioning likewise; the operation on the prostate has little effect on the blood pressure. When the blood pressure is high, the heart should be closely supervised, and camphorated oil administered in large doses at the slightest sign of its failing. Postoperative oliguria should be vigorously combated in every way, including lactosed drinks and theobromin. He never saw any disadvantage from the preliminary purge, and intraspinal anesthesia proved very satisfactory. In the eighteen cases there were four fatalities, but complete prostatectomy had been done in only one of these fatal cases.

Reconstruction of Neck of Female Bladder.—Ach refers to cases of relative incontinence of urine. There is no incontinence when the woman is seated or reclining, the anomaly being evidently due to weakness of the muscles in the neck of the bladder and posterior urethra. Marion remedies it by what he calls *réfection du col vésical*, and Ach states that in six women treated by this technic the cure is complete in four; the two others, whose incontinence had been absolute the moment they stood erect, were cured almost completely but a little urine still escapes after physical exertion at the close of a fatiguing day. A self-retaining catheter is introduced in the bladder. The cervix of the uterus is seized and drawn backward to expose the anterior wall of the vagina. Through a transverse incision in this anterior wall of the vagina the tissues on each side of the neck of the bladder are drawn together with a U stitch. Other stitches are taken below to draw up the tissues over the urethra. He uses linen thread. If the tissues draw up easily, a second row is sometimes taken. The article is illustrated.

Lyon Médical

Dec. 25, 1920, **129**, No. 24

*Surgery of Brain Tumors. L. Bériel.—p. 1009.

What Can Be Expected from Surgery of Brain Tumors?—Bériel asks this question on behalf of general practitioners. When the practitioner has diagnosed a tumor in the brain, the symptoms reveal usually whether it is a tumor of fibrous nature, and thus foreign to the brain proper, or a glioma. The fibrous tumor generally grows slowly and causes disturbance only by its mechanical encroachment on surrounding tissues. After a tumor of this kind is removed, a permanent cure may be hoped for. But a glioma is different; this is part of the brain itself, and the entire brain reacts to its presence as it is a disease of the whole brain. The conditions with which it is liable to be confounded are not other cerebral tumors, but neurosyphilis, alcohol and lead poisoning, uremia, epilepsy, migraine or psychoneurotic headache. The key to the diagnosis is the excessively high pressure of the cerebrospinal fluid. This hypertension is fatal, and operative intervention with a glioma must be restricted to keeping this tension within bearable bounds. In Bériel's sixteen cases of glioma, eight of the patients died without any operation having been attempted, but the others were treated by decompressive trephining at one or more sittings. In one case the man had had epileptic seizures for three and a half years, with progressive hemiplegia toward the last. A flap was cut in the skull and this relieved the tension and restored earning capacity. A year later symptoms returned, and the flap was found lifted up by gliomatous tissue. A decompressive operation permitted a survival of nearly a year. The illustration shows the extension into the brain of the neoplastic tissue, and the futility of attempting its removal at any time. In another case the lifting up of the skull flap shows proliferation of the gliomatous new growth. The many months of clinical good health in the interval since the decompressive operation in these two cases represent what is to date the best that can be hoped for with glioma of the brain. Bériel's advice therefore is to call in the surgeon as soon as a glioma is diagnosed, but to insist that the surgeon must not attempt to remove the tumor. There is no possibility of a cure from operative intervention. All we ask of the surgeon is to cut a large decompressive flap in the skull which can be left loose. If nothing points to the exact localization of the tumor, the anterior portion of the skull should be selected, as gliomas are more frequent in the frontal lobe than elsewhere. The surgeon must be impressed with the necessity for resisting the temptation to open the dura. Lumbar puncture is enough to release superfluous fluid.

Médecine, Paris

December, 1920, **2**, No. 3

*Hygiene and Infectious Diseases in 1920. L. Tanon.—p. 165.
*Streptococcus Pyosepticemia. C. Achard and C. Gardin.—p. 178.
Hygiene Institute to Train Health Officials. L. Bernard.—p. 181.
Serotherapy in Bacillary Dysentery. M. Dopter.—p. 186.
*Diagnosis of Infectious Jaundice. M. Garnier.—p. 188.
*Epidemiology of Epidemic Encephalitis. H. Roger.—p. 194.
Bubonic Plague. E. Joltrain.—p. 200.
Diagnosis of Cholera and Choleriform Enteritis. C. Richet, Jr.—p. 205.
*Revaccination Lesions. P. Gastinel.—p. 210.
Treatment of Influenza. R. Neveu.—p. 215.
Vaccines in Therapeutics. L. Tanon.—p. 221.
The Schick Reaction. Idem.—p. 228.
Spirochetal Bronchitis. Idem.—p. 229.

Hygiene and Infectious Diseases in 1920.—Tanon rejoices that the provisions for public health in France made great progress in 1920 by the organization of the ministère d'hygiène as a government department with a chief in the cabinet. All the health officers throughout the country are now under its jurisdiction, thus becoming federal officials instead of being subordinate to the prefects. By the new regulations, the country is divided into sanitary regions and subregions, with inspectors for each. He says of infectious diseases in 1920 that interest has centered in lethargic encephalitis and the transformation it has undergone from the lethargic to the predominantly myoclonic type during the course of the epidemic. Treatment to date seems to be only palliative, although Laubie has reported great improvement under antitetanus serum in two cases; Sainton, after intra-arachnoid injection of 1 c.c. of a 1:30 solution of methylene blue; Kahn has reported relief from the jerking, etc., under cold packs, and relief of the lethargy under hot packs. Three clinicians were impressed with the benefit that followed intraspinal injection of convalescents' serum, but Netter could not detect any benefit. The latter advocates a fixation abscess, with an infusion of jaborandi to stimulate production of saliva, plus hexamethylenamin, and epinephrin to sustain the blood pressure. As epidemic encephalitis followed so closely on the influenza pandemic, Lépine suggests that influenza entails a kind of anaphylaxis in the nervous system which renders it susceptible to the action of the encephalitis virus.

Streptococcus Septicemia.—Achard and Gardin report a case in a young man in which, after considerable pain in one hip joint, a suppurative process developed there, suggesting a tuberculous lesion, but other foci developed elsewhere, and necropsy confirmed the blood findings of streptococcus pyosepticemia, fatal in six weeks from the first symptoms.

Infectious Jaundice.—Garnier warns that while spirochetosis may assume all the forms of infectious jaundice, yet there is

a group of cases for which spirochetes are not responsible. This spirochetal jaundice is the only one among the diseases accompanied with jaundice of which the etiology seems to be now clear.

Lethargic Encephalitis.—In the course of this survey of the epidemic of encephalitis in France, Roger emphasizes the way in which cases are scattered. Although it is estimated that there have been 10,000 cases in France, yet nowhere has there been a true epidemic; the cases occur in distant quarters, without its being possible, usually, to distinguish any link between the persons affected. In only 174 cases could direct contagion be determined, but Netter comments that direct contact in cases of epidemic meningitis is no more frequent than this. One child of 3 developed the encephalitis after a visit to a country town where there had been cases of the disease, before any had been known in Paris. After its return to Paris, a 6 year old child and a 5 month infant, who slept in the same room, developed the same set of symptoms. In a family reported by Lévy, three children presented in turn the different types of encephalitis. An epidemic has been reported in an institution in England where twelve of the twenty-one inmates were affected and four died, a mortality of 19 per cent. with 57 per cent. morbidity. Contagion may possibly occur from the unrecognized visceral forms, or from healthy carriers. The incubation is generally regarded as very long, from one to two or several months. In one of Netter's cases there was an interval of eleven months between the appearance of the disease in the two sisters. Relative isolation should be enforced, and disinfection of the mouth, nose and throat.

Revaccination Lesions.—Gastinel argues that no matter how peculiar, the response to revaccination should always be regarded as positive, in that any response testifies to the specificity of the virus and the presence of preformed antibodies. It is possible that even in this the organism finds new factors of immunity. The papule which appears and disappears within a few hours is a sign that the immunity conferred by the first vaccination induces a special susceptibility to the vaccine.

Presse Médicale, Paris

Dec. 22, 1920, **28**, No. 94

*Treatment of Fractures. H. Colleu.—p. 925.
*Diphtheria Antitoxin in Prevention of Orchitis in Mumps. S. Bonnamour and J. Bardin.—p. 929.

Treatment of Fracture of Long Bones.—Colleu is enthusiastic on the advantages of Delbet's method of treating fractures of the tibia and fibula, which allows the patient to be up and about from the first. The focus of the fracture is well isolated from the knee and from the ankle, which permits them and the sole of the foot to be used freely, and leaves the play of these joints and of the muscles unhampered. A scultetus bandage of overlapping strips is indispensable. The complete technic is shown in twenty-six illustrations. In walking, instead of the usual long step taken with the fractured leg, a short step should be taken with this leg, and then, with the support of two canes, a long step with the sound leg. In taking the step with the fractured leg, the knee should be well flexed.

Diphtheria Antitoxin to Ward Off Complications in Mumps.—THE JOURNAL mentioned at the time Salvaneschi's favorable experience in twenty-six cases of mumps given an injection of diphtheria antitoxin. The parotitis was attenuated, the fever declined, and none of the men developed orchitis. In sixty-five cases a few months before there had been bilateral orchitis in fourteen. Bonnamour and Bardin here cite statistics from nearly twenty epidemics of mumps in adults showing that complicating orchitis was observed in from 10 to 25 per cent., citing Capitan's 15 per cent. one year and 25 per cent. the next among 700 cases of mumps in soldiers. They then report their own experience with sixty-five soldiers with mumps; each one was given a subcutaneous injection of 20 c.c. of antitoxin as soon as he entered the hospital. Excluding five with symptoms of orchitis on admission, all recovered exceptionally promptly and only 5 per cent. developed orchitis, and it was unusually mild. In seven other cases at another hospital treated the same way, none developed orchitis. Their experience is not extensive, but they think it suggests that it might be well to ward off or at least attenuate by this prophylactic injection of antitoxin the complications liable to develop not only in epidemic parotitis but also in other acute infectious diseases of which the causal agent is still unknown.

Revue Neurologique, Paris

July, 1920, **27**, No. 7

Annual Meeting of Société de Neurologie.—pp. 609 to 780.

August, 1920, **27**, No. 8

*Functions of the Corpus Striatum. A. Souques.—p. 785.
*Double Thalamic Syndrome. V. Christiansen.—p. 793.
Cerebellar Syndrome of Malarial Origin. Papastratigakis.—p. 800.
*Vitiligo. M. Kippel and M. P. Weil.—p. 804.
*Heredity in Periodical Depression. J. Piltz.—p. 810.
Asthenia and Mental Confusion. R. Benon.—p. 812.
Mystic Delirium and Automatic Sculpture. Laignel-Lavastine and J. Vinchon.—p. 824.

Functions of the Corpus Striatum.—Souques discusses this subject in connection with a case of progressive degeneration of the lenticular nucleus in a man of 27. The first symptom was a difficulty in writing, and now, six years later, tremor and muscular rigidity are the predominant symptoms. He reasons that the function of the corpus striatum must be to modify the tonus of the muscles and prevent involuntary movements of the muscles. When this function is lost, involuntary movements and rigidity of muscles may be expected.

Double Thalamic Syndrome.—In the case described by Christiansen, the constant pains with violent exacerbations, rebellious to all treatment, even large doses of morphin, are accompanied by choreiform, athetosic and ataxic movements, and there is also dissociation of sensibility, especially in the arms. This thalamus syndrome is bilateral in this case, which is exceptional. It began slowly and insidiously at the age of 63 in a man without pathologic antecedents. Pains in the arms were the first symptom, the fourth month the involuntary movements began. The incoordination by the end of the year now is so extreme that the man is unable to feed or dress himself.

Vitiligo.—Klippel and Weil discuss vitiligo developing by metameres, vitiligo for which some lesion in the commissure fibers seems to be responsible, and vitiligo encircling a nevus. In one patient, aged 27, there were several nevi and each was surrounded by a patch of vitiligo. In this case also the distribution of the vitiligo corresponded to certain metameres.

Manic-Depressive Psychoses.—Piltz has noted that the attacks of periodical depression develop in certain families at a certain age, regardless of provocative causes. In one family, six members had their first attack at the age of 20. They belonged to three different generations. In another family, four members developed it at the age of 35. He warns not to mistake the periodical depression of neurasthenics and hysterics for this serious manic-depressive psychosis. With the latter there is always a tendency to ascribe its first onset to some emotional shock, but he thinks knowledge of the laws of heredity renders this improbable.

Schweizerische medizinische Wochenschrift, Basel

Dec. 16, 1920, **50**, No. 51

*Antibodies. H. Sahli.—p. 1153. Begun in No. 50, p. 1129.
*Growth Epiphysitis. H. Vullict.—p. 1163.
*Pain in Eye Passing from Dim to Bright Light. K. Siegwart.—p. 1165.

Dec. 23, 1920, **50**, No. 52

Leyinthal Agar as Culture Medium for Different Bacteria. B. Galli-Valerio and M. Bornand.—p. 1177.
Survival with Mammary Cancer. J. Aebly.—p. 1178. Id. F. de Quervain.—p. 1182.
Experiences at Basel Clinic with Arsphenamin. E. Frey.—p. 1183.
Mercury Lamp in Treatment of Chilblains. E. Jost.—p. 1192.

Nature and Origin of Antibodies.—In this concluding portion of Sahli's work, which was summarized Jan. 29, 1921, p. 344, he insists that the conception of antibodies which he presents is more than a mere hypothesis, as it is derived from absolutely established facts. Notwithstanding his most careful study of literature on immunity and immunization, he can find nothing that conflicts with it in the slightest while every fact fits smoothly into it. He adds that a great general law,

such as the law of the conservation of energy—which by the way, he remarks, was the discovery of a physician, Dr. J. R. Mayer of Heilbronn—even the law of conservation of energy cannot be mathematically proved except that never to date have any facts been observed that conflict with it.

Epiphysitis.—Vulliet reports two cases of a lesion of the posterior epiphysis region of the calcaneum in boys of about 11, evidently belonging to the class of growth disturbances that include juvenile deforming osteochondritis and Schlatter's disease. The pain is at the rear of the heel, and there is slight thickening in the region, and the child refrains from stepping on his heel. The importance of the lesion lies mainly in its not being mistaken for a tuberculous or similar process. The family can be reassured; resting the foot for two or three weeks will cure the pain, and there need be no fear for the future. Radiography has revealed the basis for what we used to call merely "growing pains." In conclusion he remarks that epicondylitis is almost invariably a traumatic lesion, the consequence of some abrupt and single or repeated efforts, and it comes under the heading of occupational accidents.

Pain on Change to Bright Light.—Siegwart's experiments and clinical observation have apparently established that without perception of light there is no pain on changing from a dim to a bright light. Even when the invisible rays are applied to the eye in a very intense form there is no *blendungs* pain.

Policlinico, Rome

Dec. 20, 1920, **27**, No. 51

*Angiomas of the Brain. M. R. Castex and N. Romano.—p. 1477.
*Sodium Lactate in Diabetes. F. Curatolo.—p. 1482.
Seashore Sanatoriums for Surgical Tuberculosis. A. Maffi.—p. 1484.
*Perforation of Intestine by Ascaris. P. Gilberti.—p. 1485.

Cerebral Angiomas.—Castex and Romano report the complete recovery of a man of 43, a sculptor, with jacksonian epilepsy, after an operation on the network of varicose veins found in the pia over the rolandic and prerolandic region. The veins were ligated in turn with fine silk at the limits of the exposed area, nearly 7 by 6 cm., up to the median line. The walls of the veins tore easily and hemorrhage from some rendered the procedure slow and tedious. The operation was done at two sittings, the dura, which seemed to be normal, not being opened till a week after the bone flap had been turned back and then replaced and sutured. Improvement was rapid, aided by massage, electricity, arsenicals and strychnin, and by the second month and since the man has been completely well and strong. The symptoms first appeared four years before the operation, finally including paralysis of the right face, arm and leg, and aphasia, besides the jacksonian convulsions every five or ten minutes. No benefit was derived from mercury and iodid, and there was no tuberculous taint.

Sodium Lactate in Diabetes.—Curatolo never discovered the slightest evidence of toxic action in dogs given sodium lactate in large doses. This chemical is exceptionally readily oxidized in the human organism. It is promptly transformed into sodium bicarbonate which is eliminated in the urine. He describes his experience with it in two cases of advanced diabetes, in a man of 36 and woman of 68. In both, the acidosis subsided and the glycosuria was much reduced. Lactic acid was never detected in the urine. Modigliani has found sodium lactate useful also in treatment of acetone intoxication in children; he gave it in progressive doses to children, from 2 to 5 years old, reaching the maximum dose of 12, 18, 25 or 30 gm. a day. Faelli has also reported highly satisfactory results in the acetone poisoning of grave diabetes, reaching the daily dose of 100 or 120 gm. a day. Curatolo gave it to his two diabetics up to a daily dose of 50 or 60 gm. When sodium lactate is not available, a mixture of equal parts of sodium bicarbonate and lactic acid in water seems to answer the same purpose. The alkaline lactate reduces the polyuria, neutralizes the acids, and the output of sugar in the urine dropped from 70 to 33 or 48 per thousand in the younger of his two diabetic patients.

Perforation of Intestine by Ascarids.—The diagnosis in the first of Gilberti's two cases was a huge phlegmon in the abdomen, and the boy of 6 recovered after the operation which had revealed the hole in the intestine wall with an ascaris close by and another projecting partly from it. The other patient was a girl of 7 and the fatal acute purulent peritonitis was traced to perforation of two loops which had grown together, and three ascarids were found close by. The fecal odor of the pus and other features confirmed the assumption that the ascaris fastening itself to the bowel wall sets up an irritation which leads to ulceration, necrosis and perforation. These various steps in the process were evident at necropsy in his case and in several on record. He even admits that the mouth of the ascaris is able to injure the bowel wall directly, enough to entail perforation in time.

Archivos Españoles de Pediatría, Madrid

November, 1920, **4**, No. 11

*Little's Disease. F. Criado Aguilar.—p. 641.
Removal of Cyst in Glossothyroid Tract. A. Martin Calderin.—p. 656.
*Measles and Diphtheria. M. Ponce de León.—p. 663.
*Measles and Whooping Cough. C. Pelfort.—p. 669.

Little's Disease.—Criado Aguilar protests against the assumption that the spasmodic paralysis of this disease is the result of lack of inhibiting control from the brain. He declares that the medulla does not require an inhibiting influence from the brain, and that the brain does not exert any such influence on this organ. When there is any lesion in the elements of the medulla, motor disturbances are entailed corresponding to the elements involved, flaccid paralysis when the anterior portion is involved, and contracture when the posterior portion is in question. The essential feature of Little's disease is a hyperactivity of some portion of the motor tract, contracture being the extreme form of activity. Treatment therefore should refrain from everything liable to stimulate; no rubbing, no massage, no electricity, no training exercises. Repose and passive correction of the abnormal positions of the limbs affected, with potassium bromid, should be the main reliance. The ankle, knee and hip joint should be gently and repeatedly extended to straighten out the limbs as much as possible, and the correction thus realized should be maintained with a padded dressing. A week later they should be slightly flexed, and if necessary a splint applied to hold the correction. After a week's interval the flexion should be exaggerated, and so on, placing something between the knees to combat adduction. Extension should be alternated with flexion, the aim being to keep away from the limbs every form of stimulus while maintaining them in absolute repose except for the muscles and joints being thus gently used a little to keep them flexible. When a satisfactory condition has been realized, then active movements, douches at 40 or 45 C. for the limbs affected, galvanization, etc., can be cautiously begun under strict supervision. If the cause cannot be removed, at least we can combat the contracture, and this can be done without injuring the mechanism of movement. He denounces any attempt at surgical intervention.

Measles and Diphtheria.—Ponce de León states that forty-three of the 103 diphtheria patients in his service (Montevideo) had measles just preceding or during the diphtheria. He urges to inject antitoxin whenever a child with measles develops croup, whether membranes are visible in the throat or not, and without waiting for bacteriologic examination. Discovery of a pseudomembrane in the throat in a case of measles likewise calls for antitoxin.

Measles and Whooping Cough.—Pelfort remarks that acute infectious diseases have been exceptionally prevalent among the children of Montevideo of late. In four cases he describes, measles followed whooping cough and pneumonia developed, fatal in two of the cases.

Revista Médica del Uruguay, Montevideo

November, 1920, **23**, No. 11

Lethargic Encephalitis in Child. W. Piaggio Garzón.—p. 509.
History of Treatment of Inversion of Uterus. E. Pouey.—p. 514.
Idem. A. Turenne.—p. 515.
*Suprarenal Toxemia of Pregnancy. A. Turenne.—p. 519.
*Pyelitis of Infants. V. Zerbino.—p. 526.

Suprarenal Toxemia of Pregnancy.—Turenne attributed to suprarenal insufficiency the uncontrollable vomiting, weakness,

chilliness and low blood pressure in a young woman approaching the fourth month of her first pregnancy. Under bed rest, glucose solution by the drop method and epinephrin by subcutaneous injection, the condition materially improved, and under continued epinephrin treatment the pregnancy proceeded to normal delivery. Then came a period of aggravation, evidently due to the stress of lactation and development of a lesion in the adnexa. Improvement was realized with resumption of the epinephrin treatment, but the woman had lost 20 kg. in weight and a final attack of acute suprarenal insufficiency proved fatal in thirty-four hours. Necropsy was not allowed, but he lists the case as one of postpuerperal Addison's disease.

Treatment of Pyelitis in Infants.—Zerbino explains the beneficial action of a disinfectant injected into the intestines, in case of pyelitis in young children, by the lymphatic connections between the intestines and kidneys. These are responsible for the spread of the infection from the intestines to the kidney pelvis. Methylene blue has a pronounced bactericidal action on the bacteria usually involved in these cases, as well as on the fusospirillar infection of Vincent's angina. In one case the infant's symptoms had been ascribed to the intestinal disturbances (which always precede or accompany the pyelitis), until the agitation, thirst, variable infiltration of the face and extremities, and fleeting periods of fever led to examination of the urine, which revealed pus and sediment. Treatment with methylene blue enemas soon cured this child of 2, and it passed through a severe infectious sore throat and measles not long after without harm. The pyelitis in this case had been of a subacute type, but in a case in a boy of 12, fever, headache, vomiting, hematuria and the absence of bladder tenesmus, followed by turbid polyuria, differentiated the pyelitis. In a second case in a boy of 10, the acute pyelitis was associated with nephritis. This acute form is rare. But an acute exacerbation of a subacute, ignored pyelitis is comparatively common. He reports a case of this kind in a breast fed infant of 6 months. It had been presenting symptoms for a month, slight fever, loss of weight, diarrhea, etc., ascribed to overfeeding, until pus was discovered in the urine. The yellowish tint, sunken eyes, agitation and loss of appetite confirmed the diagnosis of pyelitis but a course of hexamethylenamin seemed to irritate the stomach and exaggerate the diarrhea. Zerbino then ordered two injections daily of 150 gm. of a 1:3,000 solution of methylene blue, and improvement was evident by the next day and by the tenth day the child could be considered cured and has been in good health during the months since. In conclusion he emphasizes that methylene blue, injected into the intestine, follows the same route as the bacteria causing the pyelitis ,and as it is eliminated easily and rapidly by the kidneys, its action is felt along the entire urinary passages.

Semana Médica, Buenos Aires

July 29, 1920, **27**, No. 31

*Thrombophlebitis and Septicemia. J. C. Navarro and C. Pillado Matheu.—p. 133.
*Pylorospasm in Infant. E. Martinez Zuviria.—p. 136.
Film Treatment of Burns. M. Critto.—p. 158.

Thrombophlebitis and Septicemia.—Navarro and Matheu report a case of thrombophlebitis in the lateral sinus in a girl of 8. Only a little pus was found in the sinus, and except for a minute subcutaneous abscess there was no further localization of the infection, although the grave septicemia persisted for four months before death, notwithstanding vigorous treatment.

Pylorospasm in Infants.—The 2 months infant described by Martinez Zuviria presented some of the symptoms considered pathognomonic of the congenital type of hypertrophy of the pylorus, especially the excessive peristalsis in the stomach walls. But, on the other hand, the child screamed just as it vomited, which pointed to a functional spasm. Under treatment with 3 drops daily of a 1:1,000 solution of atropin and hot moist heat to the epigastrium, the pylorus promptly became permeable and the emaciated infant soon became round and rosy. Twenty-two pages are devoted to discussion of the literature on stenosis of the pylorus and its treatment. The pathogenesis and diagnosis are also discussed.

Siglo Médico, Madrid

Sept. 11, 1920, **67**, No. 3483

The Thévenon-Roland Test for Blood Is Not Specific. R. Alvarez de Toledo.—p. 685.
*Tachycardia and the Internal Secretions. E. Bonilla.—p. 688.
*Phototherapy in Gynecologic Disease. S. Recasens.—p. 689. Conc'n in No. 3485, p. 731.
Lipase of the Serum in the Tuberculous. F. G. Guijarro.—p. 691.

Sept. 18, 1920, **67**, No. 3484

Miliary Tuberculosis with Streptococcus Joint Disease. M. Tapia.—p. 705.
Acute Atypical Meningitis. B. Gil y Ortega.—p. 707. Conc'n in No. 3486, p. 750.

Tachycardia and the Internal Secretions.—Bonilla agrees with those who regard excessive functioning of the thyroid as a factor in all forms of tachycardia, paroxysmal or permanent. During the war, persons previously healthy were known to present the clinical picture of exophthalmic goiter developing suddenly after terrific emotional stress, a bombardment, battle, etc. Cannon found an increase of the thyroid hormone and of epinephrin in the blood of cats that had been subjected to great fright. Achúcarro agreed with him that the thyroid and the suprarenals are the endocrine glands most involved in emotional stress. In short, Bonilla concludes, every emotional tachycardia is of thyroid origin, from excessive functioning of the thyroid. Persons inclined to hypothyroidism do not develop tachycardia; they are tranquil, apathetic. The tachycardia may be the only symptom of the hyperthyroidism or there may be hypertension as well, from excessive functioning likewise of the suprarenals.

Phototherapy in Gynecologic Disease.—Recasens reviews the history of the application of sunlight and the mercury vapor lamp in therapeutics, and especially in the diseases of women and in the healing of war wounds, emphasizing the immense progress realized with the artificial sources of the ultraviolet rays. The bactericidal action of the ultraviolet rays has been demonstrated in many ways, just as molds dry up and die when exposed to the sunlight. Chronic gonococcus gynecologic processes may subside completely under exposure to ultraviolet rays, as also essential vulvar pruritus, solely from the analgesic action of the actinic rays, in three, four or five exposures. The sun's rays are less active applied locally, but they have a very pronounced action when the whole surface of the body is exposed. Recasens adds that many have reported benefit in epilepsy from heliotherapy, and as we know the preponderant rôle of the parathyroids in tetany, it seems plausible to assume that the parathyroids are favorably influenced indirectly by substances mobilized from the skin under the influence of the actinic rays. The number of cases of tetany cured by exposure to ultraviolet light is too large for a casual coincidence. The sedative action of the exposures is remarkable; the excitable and restless are tranquilized and often drop into tranquil slumber. He states that leukoplakia of the vulva and craurosis have been materially benefited by the ultraviolet rays in a number of instances, so that now he thinks it is a sin of omission to refrain from insisting on ultraviolet treatment for them, especially as leukoplakia so often is followed by epithelioma. In erosions of the cervix, the ultraviolet rays have yielded notable curative results in his experience. The day is past, he adds, when operative measures were applied to processes of this nature, but they are often rebellious to local treatment, while they yielded to a few applications of the ultraviolet rays, both simple cervicitis and papillary vegetations. In one case the lesion seemed to be a cancer, and hysterectomy had been advocated, but under six applications of the ultraviolet rays the pseudo-ulcerative process disappeared completely. The discovery of giant cells in the lesion was not confirmed by the finding of tubercle bacilli. Tuberculous peritonitis of genital origin is a special indication for actinotherapy; if there is much ascites a laparotomy may be necessary, but with or without this, it is the most effectual treatment when systematically applied. Without ascites, he adds, there is no excuse for a laparotomy, as the actinotherapy alone gives excellent results. Woody phlegmon of the broad ligament has also yielded to general light baths or heliotherapy in a truly remarkable manner. The sunlight —or the mercury vapor lamp in its absence—does not act on the phlegmon directly but by its activation of the organic

forces in general, as also in white swelling of the knee, hip joint disease, and amenorrhea or uterine hemorrhage without an organic basis.

Deutsches Archiv für klinische Medizin, Leipzig

July 29, 1920, **133**, No. 1-2

*Adaptation of Shape to Work. V. von Weizsäcker.—p. 1.
*Diagnostic Import of Anisotropic Substances in Urine. O. Gross.—p. 9.
*Relation of Water Intake to Blood Pressure. G. Dorner.—p. 21.
*Constitutional Obesity. E. Grafe.—p. 41.
*Endothelial Cells in Blood Stream. A. Bittorf.—p. 64.
*Fatalities After Injection of Strophanthin. L. Rahn.—p. 74.
Pathology of Kidneys in Mercury Poisoning. G. Schieck.—p. 99.
*Hyperplasia of Salivary Glands with Endocrine Disease. A. Hämmerli. —p. 111.

Adaptation of Size and Shape of Muscle to Work Demanded of It.—Weizsäcker seeks to explain by mathematical laws how the muscles, and the heart muscle in particular, seek to overcome what he calls "shape insufficiency," the shape not being adapted to the special work demanded.

Diagnostic Significance of Substances with Double Polarising Power in Urine.—Gross has found anisotropic substances, fluid crystals, that is, lipoids, very often in the urine with kidney disease. They were never found in normal urine. The amount fluctuates, and he found that this was dependent on the diet to a certain extent, but more so on the condition of the kidneys. The lipoiduria after ingestion of 5 gm. cholesterin, fasting, in three cases of kidney disease described, confirmed the assumption that lipoid nephrosis is a manifestation of injury of the tubuli which renders them unable to hold back lipoids. Lipoiduria thus seems to be a reliable sign of disease of the tubuli. Syphilis we know attacks the tubular apparatus of the kidney predominantly or exclusively, and we thus find lipoid nephrosis in syphilis. The same explanation applies to the large amounts of anisotropic substances found in the urine in eclampsia, and also in one case of diabetic kidney disease.

Relation Between Blood Pressure and Water Intake.—Dorner recorded the blood pressure before and one and two hours after 1.5 liter of water had been ingested fasting. The findings are tabulated in fourteen cases of mild nephritis, thirteen of moderate and twenty of severe nephritis, as well as in a number of patients with other diseases and in the healthy. In nephritis the blood becomes much diluted, but with nephrosis there may be very little dilution. The blood may even become concentrated from the flow of water out of the blood in consequence of the freshet, the walls of the vessels being abnormally permeable under the influence of the kidney disease. In some cases of nephritis the response is like that in the normal, without any considerable rise in pressure. With acute glomerular nephritis, the blood pressure rises with a true hydremic plethora; this can be combated by restriction of water and a dry diet. There seems to be in this case some special tension of the vessels, possibly traceable to substances circulating in the blood. Dorner adds that infusion by the vein of 200 c.c. of physiologic solution of sodium chlorid often reduces a high blood pressure, but further infusion raises it. With arteriosclerosis of the vessels, venesection and water restriction seldom reduce the blood pressure. It keeps high even when the blood becomes more concentrated, with a lesser volume of the blood stream. The behavior of the blood pressure during this water freshet test, and with intravenous infusion of saline, may thus throw light on the functional capacity of the vascular system.

Pathology and Treatment of Constitutional Obesity.—Grafe asserts that every case of overweight is due to overeating, while, on the other hand, in every case of obesity from overeating there is a constitutional factor involved. The attempt to define two separate types thus does not conform to facts. In ten cases of predominantly constitutional obesity the thyroid seemed responsible in two, the ovaries in two, and the pituitary in two. In each the respiratory gaseous interchanges were recorded and the influence of pronounced dietary privations, especially on water metabolism—a factor which he thinks has been rather overlooked in the past. The findings are tabulated under twenty headings for each of the tests on each of the patients. They were kept in bed during the whole course of treatment or strictly isolated. The response to the respiratory tests refuted the assumption that obesity is due to disturbance in the oxidation of fat. Some of the patients, especially those with slight disturbance of the circulatory system, lost weight rapidly on reduction of the food to 50 per cent. of the normal requirements; the weight of others scarcely declined even when the nourishment was only 30 per cent. of the requirement, and the weight then kept constant for a long time. The tests showed that this was due to an extreme tendency to retention of water although the cardiovascular system and the kidneys seemed to be normal. The retention of water from the food may keep the weight at a constant level although the body is constantly losing more and more of its dry constituents. This tendency to retention is far greater than corresponds to the prolonged underfeeding, even with very small intake of fluids. This is the reverse of what occurs in healthy persons and dogs under forced feeding. The excess of food forms dry tissues, and water is cast off to compensate for this, so that the weight may not increase in spite of the overfeeding. In the obese the dry tissues melt away and water is retained to compensate for this. So the weight keeps on a level in both conditions.

All this is altered however by removal of the thyroid or ovaries. In the thyroidectomized but otherwise normal animals, retention of water to an extreme degree follows and the weight increases rapidly and continuously. This and other facts cited demonstrate that the thyroid not only controls the intensity of the oxidations but also the intracellular water metabolism. The importance of the thyroid in the pathology and treatment of edema and obesity has been overlooked; the retention of water in the obese has been erroneously ascribed to cardiovascular weakness. This may develop secondary to the sluggish and abnormal water metabolism, and it calls for endocrine treatment, especially thyroid treatment. Two of the patients took for weeks thyroid extract three times a day, with a diet of only 30 per cent. of the normal requirement, and all with good effect and without appreciable subjective disturbances. Moderate exercise, such as a short walk has generally a favorable effect, but it renders more difficult the oversight of the case.

He begins with reduction to 50 per cent. of the requirement, with a maximum of 1,500 c.c. of fluid. The food should contain at least 8 gm. nitrogen and be predominantly of carbohydrates and be salt-poor. A milk diet is often excellent, not allowing over 1.5 liters daily. If these measures fail, the food can be reduced to 33 or even 25 per cent. of the requirement, with only 1,000 c.c. water, if there is nothing to hinder on the part of the circulation or subjective findings. A day of very little or no calory intake may be interposed. There is not much danger, he says, of appreciable losses of nitrogenous substances from the body with this, as in the overfed organism a large part of the albumin stored up in the obese tissues is quite different from living protoplasm albumin, and is by no means biologically on a par with it. Only when all these measures fail, does he supplement them with endocrine therapy.

Endothelial Cells in the Blood Stream.—Bittorf found endothelial cells in the blood stream in a case of slow endocarditis with a hemorrhagic tendency. He is inclined to regard the injury of the blood cell walls, to which the endothelial cells testify, as responsible for the hemorrhagic diathesis.

Fatalities After Intravenous Injection of Strophanthin.—Rahn has compiled twenty-five cases of death occurring in close connection with the first, third or fourth injection of strophanthin. In eleven cases the causal connection was certain and in two it was probable. He is confident that some of the fatalities might have been avoided with smaller doses, longer intervals, and better knowledge of the digitalis that had been given before. With acute weakness of the heart, when the previous history is not known, it is better to abstain from giving strophanthin. In fact, he declares, he refrains from giving strophanthin in the home. The indications for this drug are restricted to cardiac insufficiency with chronic myocarditis or with valvular defects. It might be tentatively used with heart weakness from vascular paresis in infectious diseases, with postoperative collapse, with paroxysmal tachycardia, and with cardiac insufficiency in acute nephritis. It may prove harmful and fatal in pericarditis, in

chronic nephritis with high blood pressure, acute myocarditis, angina pectoris, pulsus bigeminus, heart block, extrasusceptibility to digitalis, and in the heart weakness of exophthalmic goiter.

Hyperplasia of Salivary Glands with Suprarenal Disease.—Hämmerli remarks that in the 13 cases he has compiled from the records in which hyperplasia of the salivary glands was associated with endocrine disturbance, none of the patients were examined postmortem nor in Nagel's later series of 7 cases. But he is able to describe the necropsy findings in a man of 50 with dementia praecox, enormous goiter and enormously enlarged salivary glands. There was also hyperplasia of the suprarenals and slight atrophy of the testicles. In 12 of the 26 clinically observed cases, the thyroid was mainly at fault, and in 11 of the 26 there was pronounced obesity. The coexistence of the endocrine derangement suggests that we must ascribe an internal secretion to the salivary glands. These cases differ from those in the Mikulicz group of cases, but in both there is endocrine derangement. In his case the salivary glands showed merely hyperplasia. At the Geneva clinic an increase in size and weight of the salivary glands in cases of goiter has been noticed of late.

Deutsche medizinische Wochenschrift, Berlin

Oct. 14, 1920, **46**, No. 42

Open Ductus Arteriosus; Two Cases. A. Schittenhelm.—p. 1157.
*Ethyl Chlorid Spray for Boils, etc. P. Bockenheimer.—p. 1158.
Chronic Influenza. G. Treupel.—p. 1159.
*The Spirochete in Weil's Disease. G. Sobernheim.—p. 1160.
*Loose Bodies in Joints. M. Kappis.—p. 1161.
Paralysis and Civilization. W. Gärtner.—p. 1163.
Spirochaeta Pallida in the Cervix Uteri in Primary Syphilis. D. Fuchs. —p. 1165.
Radical Destruction by the Benzidin Reaction Itself of Minute Quantities of Blood. J. Gattner and E. Schlesinger.—p. 1167.
Remarks on Steinach's Rejuvenation Experiments. E. Liek.—p. 1167.
Importance of Distinction Between Open and Closed Pulmonary Tuberculosis in the Campaign Against Tuberculosis. E. Hartmann.—p. 1168.
Aspergillus Fumigatus in the Lungs in Influenza. Müller.—p. 1169.
Idem. K. Kleberger.—p. 1170.
Serious Poisoning from Fumes of Benzene. Adamkiewicz.—p. 1171.
Technic of Catheterization. L. Casper.—p. 1172.

Treatment of Circumscribed Pyogenic Infections by Refrigeration with Ethyl Chlorid Spray.—Bockenheimer has found ethyl chlorid spray an excellent method of treating boils and carbuncles. In the type of spray that he has designed, a jet of air is combined with the ethyl chlorid, which makes refrigeration more rapid and more intense. Incipient infections are aborted and more advanced infections are checked and a prompt cure effected. The treatment is painless, causes no loss of time from work, and leaves an inconspicuous, smooth scar.

Spirochaeta Icterhaemorrhagiae in Relation to Weil's Disease.—Sobernheim reports from Bern the results of investigations to determine whether the Japanese spirochete which was discovered in 1915 by Inada and Ido to be the causative agent in Weil's disease is identical with the spirochete discovered by Hübener and Reiter and also by Uhlenhuth and Fromme to be the causative agent of the type of disease appearing in Germany, the symptoms of which had been described as somewhat different from those of the type prevailing in Japan. Investigations were carried out by Kaneko and Morihana with the culture of the Japanese spirochete that Kaneko brought from Japan. The results were unequivocal. Animals inoculated with either the Japanese or the German spirochete acquired immunity not only against the strain with which they were inoculated but against the other one as well, and immune serums were found to exert a specific effect on both spirochete strains.

Movable Bodies in Joints.—Kappis says that it is usually assumed that movable bodies are much more common in the knee than in the elbow, but since 1914 he has had fifty-one cases involving the elbow and only eighteen affecting the knee joint. The cases involving the elbow were for the most part in the 14-18 age group or had originated during those years. In the knee cases no particular age group was preferred. Early diagnosis is important, since by the early removal of the movable bodies the development of arthritis deformans is prevented. If arthritis deformans is already present and is not too far advanced, recovery is brought about often by the mere removal of these bodies. During the operation the point of origin of the loose bodies should be looked into and the site cleared up lest new movable bodies be continually formed. Compare with abstract on page 416.

Münchener medizinische Wochenschrift, Munich

Oct. 8, 1920, **67**, No. 41

Mercury in Experimental Syphilis. Mulzer and Bleyer.—p. 1163.
The Oligodynamic Effect of Metals on Bacteria. Süpfle.—p. 1166.
Roentgen Irradiation of Tuberculous Joints. O. Jüngling.—p. 1168.
Treatment of Furunculosis with Roentgen Rays. Schreus.—p. 1169.
Injecting Placenta with Sodium Chlorid Solution to Induce Spontaneous Separation. Traugott.—p. 1170.
Gonorrheal Vulvovaginitis During Childhood. J. Duken.—p. 1172.
Formaldehyde-Ether Solution in Intertrigo and Other Skin Diseases of Childhood. K. Behm.—p. 1173.
*Effect of Raw Onions on Gastric Digestion. E. Wilbrand.—p. 1174.
Healing of Tuberculous Pneumothorax under Intrapleural Injections of Glucose. E. Kulcke.—p. 1175.

Favorable Effect of Raw Onions on Gastric Digestion.—Wilbrand reports the result of experiments on dogs with induced gastric or duodenal fistula to determine the action of raw onions on gastric digestion. Following the ingestion of approximately 200 gm. of potatoes (boiled), to which 10 c.c. of human saliva and 30 gm. of raw chopped onions had been added, he observed that the onions caused a marked retardation of digestion, an increase in the acidity of the gastric juice, and an augmentation in the secretion of digestive juices, which continued at a high level for a long period. These facts have considerable clinical importance, he says. If—in a normally functioning stomach—the food is subjected for a long period to a markedly acid gastric juice, it enters the intestine in a more thoroughly digested condition, and we may assume that no portion of the chyme entering the intestine has escaped contact with the gastric juice. Consequently, bacteria that have entered the stomach with the food are more likely to be killed. Aside from the direct effect of the raw onion juice on the bacterial flora, its action as a prophylactic against intestinal diseases of bacterial origin is thus established, since it is well known that gastric acid constitutes the main obstacle to the development of schizomycetes that enter the body by way of the gastro-intestinal tract. He adds that onions must likewise exert a curative effect on existing intestinal affections as, owing to their action, food leaves the stomach in a well digested condition, so that no extra work falls on the intestine, since no undigested food enters the intestines and becomes decomposed, thus aggravating the already existing catarrhal condition. Raw onions are therefore to be recommended for persons with hypoacidity of the gastric secretion but are contraindicated in hyperacidity.

Zeitschrift für urologische Chirurgie, Berlin

Dec. 20, 1920, **5**, No. 4-6

Partial Antigens in Treatment of Urogenital Tuberculosis. F. Schild. —p. 197.
Universal Urethroscope. A. Glingar.—p. 224.
*Treatment of Injury of Male Urethra. Linnartz.—p. 230.
*Surgery of the Prostate. W. Fischer and O. Orth.—p. 232.

Treatment of Injury of Male Urethra.—Linnartz warns that when it is impossible to pass a catheter into the bladder, this may sometimes succeed under the relaxation induced by general anesthesia. This should be tried before resorting to urethrotomy. In a case described, he passed a metal catheter into the bladder which had been opened by a transverse incision. A thread was then passed through the openings in the catheter and was drawn down through the urethra with the latter. The thread was then passed through the tip of a retention catheter which was then easily drawn up into the bladder. He thus avoided external urethrotomy in this case.

Surgery of the Prostate.—Fischer and Orth are assistants in Voelcker's service, and they here give seventy-two illustrations of the anatomy and physiology of the prostate and of Voelcker's technic for prostatectomy which they claim represents important progress. They discuss further the whole field of diagnosis and treatment of prostate disease. For the Voelcker ischiorectal method of prostatectomy, the patient has the rump raised on a bolster on a table sloping down toward the head. The anus is sutured, and through a

vertical incision in the ischiorectal fossa the levator ani is exposed and the fibers worked apart with the fingers. The pelvic fascia is thus exposed and this is incised, avoiding the network of veins, ligating those that are necessary. The rectum is worked loose from the prostate and the latter, with the seminal vesicles, then lies exposed. The "capsule" is incised, the prostate shelled out, and the severed urethra sutured to the neck of the bladder which has been held in place by six long loops of thread passed through its edge all around. The ischiorectal incision is sutured around a large drain. Through the retention catheter 50 c.c. of sodium chlorid solution are injected into the bladder every ten minutes for the first twenty-four hours. It flows out through the large drain. The mortality in 100 cases was 5 per cent., including one death for which the prostatectomy could not be incriminated. The average mortality in Germany with the suprapubic technic is stated to be 20 per cent. A previous article on ischiorectal prostatectomy was summarized in these columns Dec. 11, 1920, p. 1685.

Zentralblatt für Chirurgie, Leipzig

Oct. 9, 1920, **47**, No. 41

Obstructed Gallbladder. V. Schmieden.—p. 1257.
Chisels with Knife Edge for Osteoplasty. E. Payr.—p. 1261.
Case of Mesenteric Duodenal Occlusion with Secondary Gastric Paralysis. A. von Mutach.—p. 1264.
Technic of Antethoracic Esophagoplasty. E. Kreuter.—p. 1266.

Zentralblatt für Gynäkologie, Leipzig

Oct. 9, 1920, **44**, No. 41

*Testing Donor's Blood Before Transfusion. R. Zimmermann.—p. 1146.
Minimal Doses of Pituitrin to Bring on Labor at Term. A. Stein (New York).—p. 1152.
Nitrous Oxid-Oxygen Analgesia for Painless Birth. Idem.—p. 1153.
Management of Abortion. W. Strakosch.—p. 1155.

Iso-Agglutinins and Isohemolysins with Reference to Blood Transfusion.—Zimmermann undertook a series of investigations in order (so far as experiments in vitro would show) to ascertain how frequently, when homogeneous bloods of various origin are brought in contact, agglutination and hemolysis will occur. In one series the blood of four different persons was tested and in four other series the blood of eight different subjects. In each series the serum of each person was tested with the erythrocytes of all the others. In the first series, therefore, there were twelve combinations and in the four other series fifty-six combinations, each. In the first series hemolysis did not occur, but agglutination occurred five times: in the second series (gravidae) hemolysis, none; agglutination eighteen times: third series (gynecologic, convalescent cases), hemolysis, ten times; agglutination, twenty-one times: fourth series (healthy gravidae, gynecologic convalescent cases and healthy subjects), no hemolysis; agglutination, twenty-four times, or 42.8 per cent., and in the fifth series (subjects of about the same character as in Series 4), no hemolysis; agglutination, sixteen times. In four series of investigations conducted by Bäz in the same manner, the results were: of 224 combinations, hemolysis, nineteen times, and agglutination, seventy-five times. Combining Zimmermann's results with those of Bäz we get: of 460 combinations, hemolysis, twenty-nine times, or 6.3 per cent.; agglutination, 169 times, or 36.7 per cent. Although the behavior of a blood mixture may be somewhat different in the circulation from what it is in vitro, the results of these investigations show, in a general way, the relative danger from hemolysis and agglutination, and also point out the necessity of testing out the donor's blood when time allows. Otherwise recourse must be had to the trial infusion of from 20 to 30 c.c. of blood.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Nov. 27, 1920, **2**, No. 22

The Language of Medical Writings. G. van Rijnberk.—p. 2351.
*Nonmalignant Stenosis of Digestive Tract. E. van Lier.—p. 2356.
*Relations Between Voluntary Reaction Movements. A. Querido.—p. 2362.
Uniform Medical Inspection Records. E. Bunning.—p. 2419.

Benign Stenosis of the Intestines.—Van Lier warns not to be too ready with the assumption of cancer when there is an intestinal tumor in a person over 50. Statistics show that 20 per cent. of all cases of tumor at the pylorus are benign, and Remijnse's recent compilation of cases of resection of the stomach includes 20 per cent. complete recoveries. Even a palpable tumor at the pylorus is not necessarily malignant. Lanz did not even complete the exploratory operation with a gastro-enterostomy in one case in 1915, as the pylorus was found the seat of an extensive tumor assumed to be a carcinoma. But the patient is still living, five years later, in good condition. Van Lier knows of two other similar cases in which the supposedly doomed patient recuperated and lived for years in good health. Nothing but microscopic examination or the discovery of metastases renders malignant disease certain. Van Lier reports three cases encountered in the last six months in which extreme stenosis of the pylorus in two women of 68 and 70 and a man of 69 was treated by gastro-enterostomy, with apparently complete recovery to date. Cancer had been diagnosed in two of the cases, and he had been warned against "tormenting" these elderly persons with a "needless operation." Advanced age is no argument for the cancerous nature nor a reason for omitting roentgen and chemical examination of the stomach. He spared these patients the use of the stomach tube, examining merely the vomit. Tumors in the ileum are very rare, and they are always malignant, but the colon, from the cecum to the anus, may be the seat of inflammatory tumors. Fortunately, he adds, every tumor in colon or pylorus is not inevitably cancer nor even of syphilitic, tuberculous, gonococcus or scirrhus origin.

Reaction Time.—Querido describes the apparatus in use at the Amsterdam Physiology Laboratory for testing the interval between the stimulus and the biologic reaction, and describes the findings, and the relations between voluntary reaction movements.

Ugeskrift for Læger, Copenhagen

Dec. 16, 1920, **82**, No. 51

*Central Amblyopia After Drinking Cheap Alcohol. O. Blegvad.—p. 1575.

Amblyopia After Drinking Cheap Substitute for Brandy.—Blegvad has encountered thirty-two cases in the last year or two in which central amblyopia had developed sooner or later, up to several months, after beginning to drink a little *kogesprit* daily in place of the more expensive customary brandy. Vision had been reduced by nearly 75 per cent. and in twenty of the eyes the papilla was more or less blanched, and in thirty-four there was a tendency to atrophy, while scotoma for red or green or blue or white was common. The patients had all applied to be fitted with glasses as they could not see to read.

Upsala Läkareförenings Förhandlingar

Sept. 15, 1920, **25**, No. 1-4

*Investigations on Myeloma. A. Wallgren.—p. 113.

Investigations on Myeloma.—Wallgren collected sixteen cases and studied them very exhaustively in the light of clinical and histologic data. He interprets the etiology as a systematic metastasis, the manifestations as a tumor, and points out the close similarity of the latter to sarcoma, while he surmises its true nature to be a form of pseudoleukemia. The diagnosis rests on the presence of the Bence-Jones albuminous bodies in the urine. A combination of rheumatism and albuminuria always should be regarded with suspicion. The Bence-Jones albuminous substances coagulate at 50—60 C. and dissolve again at a temperature close to the boiling point, the exact temperature points varying with the percentages of salts and acids in the urine. This Bence-Jones protein is found in various diseases of the skeleton, notably in cancer and in lymphatic leukemia, and may originate from a degenerative process in the bone marrow due to enzyme action. The myeloma lesions are nearly always within the trunk, not in the extremities, and the initial locality is within the bone marrow. Spontaneous fractures in older individuals should be regarded with suspicion. The prognosis is unfavorable. The progress of the pathologic process may be retarded by radiotherapy or organotherapy, but no specific treatment is known. Death usually results from some complication. Ten plates and an extensive bibliography accompany the paper, with compilation of the few cases on record.